

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

TECHNICAL MEMORANDUM NO. 2 GEOLOGIC ASSESSMENT

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

Unit Identification Code (UIC): N60508 Contract No. N62467-89-D-0317

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November 1994



FOREWORD

The Department of the Navy developed the Installation Restoration (IR) program to locate, identify, and remediate environmental contamination from the past disposal of hazardous materials at Navy and Marine Corps installations. The Navy IR program follows the Department of Defense Environmental Restoration Program mandated by the Superfund Amendments and Reauthorization Act of 1986 to address waste sites that may pose a threat to human health or the environment.

The IR program consists of Preliminary Assessment and Site Inspection, Remedial Investigation and Feasibility Study (RI/FS), and Remedial Design and Remedial Action at sites where chemicals were allegedly disposed. The Preliminary Assessment and Site Inspection identify the presence of pollutants. The RI/FS analyzes the nature and extent of contamination and determines the optimum remedial solution. The Remedial Design and Remedial Action complete the implementation of the solution.

Previous investigations have determined that Naval Air Station (NAS) Whiting Field has 23 waste sites that may pose a threat to human health or the environment. Therefore, an RI/FS will be performed to address the extent, magnitude, and impact of possible contamination at these waste sites.

This Technical Memorandum discusses field methods, transmits data, and summarizes results for the geologic assessment phase of the RI.

Questions regarding this report should be addressed to the Commanding Officer, NAS Whiting Field, or to Southern Division, Naval Facilities Engineering Command, Code 1859, at AUTOVON 563-0341 or (803) 743-0341.

EXECUTIVE SUMMARY

A Remedial Investigation and Feasibility Study (RI/FS) is being conducted at the Naval Air Station (NAS) Whiting Field facility in Milton, Florida. The RI/FS is being conducted for the Department of Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) as part of their Installation Restoration (IR) program. The IR program was designed to identify and abate or control contaminant migration resulting from past operations at naval installations.

The RI was conducted using a phased approach with Phase I completed in May 1992 and the second phase, designated Phase IIA, completed in February 1994. Technical Memorandum No. 2, Geologic Assessment, is the second in a series of seven technical memoranda that summarizes the results and transmits the data gathered during the Phase IIA RI. These memoranda will form the supporting basis for the RI report and any additional work to be completed at the facility.

The purpose of the RI geologic assessment was to characterize site-specific and facility-wide geology at NAS Whiting Field. Data obtained from this assessment may be used in support of the FS to be performed later in the program.

The field work for the geologic assessment was conducted between October 1992 and August 1993 and included the completion of 57 soil borings, installation of 76 monitoring wells, and completion of 7 pressure cone penetrometer soundings.

The findings of the geologic assessment at NAS Whiting Field indicated the following.

- The facility geology is consistent with regional geologic descriptions. The site-specific lithologic logs indicated interbedded sand, silt, and silty sand units with occasional discontinuous clay layers.
- An extensive, yet locally discontinuous, clay layer was confirmed in the Industrial and Southeast Disposal Areas.
- A clay layer of very limited areal extent, was detected at the Northwest Disposal and Crash Crew Training Areas.
- The presence of a continuous clay layer between the Industrial Area and the Southwest Disposal Area was not confirmed.
- A facility-wide continuous clay layer, above the depth of 50 feet above National Geodetic Vertical Datum (NGVD), does not underlay NAS Whiting Field.

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GLOSSARY

ABB Environmental Services, Inc. ABB-ES American Society for Testing and Materials ASTM aviation gasoline **AVGAS** Bengt-Arne-Torstensson BAT benzene, toluene, ethylbenzene, and xylene BTEX below land surface bls Contamination Assessment Report CAR Comprehensive Environmental Response, Compensation, and Liability **CERCLA** Code of Federal Regulations CFR Florida Department of Environmental Protection **FDEP** Florida Department of Environmental Regulation **FDER** HRS Hazard Ranking System Initial Assessment Study IAS Installation Restoration IR Naval Air Station NAS National Oil and Hazardous Substances Pollution Contingency Plan NCP No Further Action Proposal NFAP National Geodetic Vertical Datum NGVD National Priority List NPL OLF Outlying Landing Field Preliminary Assessment PA polychlorinated biphenyl PCB piezocone penetrometer PCPT Remedial Investigation/Feasibility Study RI/FS Remedial Project Manager RPM Superfund Amendments and Reauthorization Act SARA SI Site Investigation SOUTHNAV -Southern Division, Naval Facilities Engineering Command FACENGCOM standard penetration test SPT target analyte list TAL TCE trichloroethene target compound list TCL TRAWING FIVE Training Air Wing Five Unified Soil Classification System

USCS

USEPA UST

U.S. Environmental Protection Agency

underground storage tank

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to the Department of Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) is submitting Technical Memorandum No. 2 for the Phase IIA Remedial Investigation and Feasibility Study (RI/FS) for Naval Air Station (NAS) Whiting Field located in Milton, Florida. The RI/FS is being conducted under contract No. N62467-89-D-0317.

Technical Memorandum No. 2, Geologic Assessment, is the second in a series of seven technical memoranda that summarize the results and transmits data gathered during the Phase IIA RI. These technical memoranda form the supporting basis for the RI report and any additional work to be completed at NAS Whiting Field. The Phase IIA RI field program was conducted between April 1992 and February 1994. The following is a complete list of technical memoranda:

- No. 1, Surface Water and Sediment Assessment;
- No. 2, Geologic Assessment;
- No. 3, Soils Assessment;
- No. 4, Hydrogeologic Assessment;
- No. 5, Groundwater Assessment;
- No. 6, Overall Phase IIA RI Assessment; and
- No. 7, Workplan and Recommendations for Phase II-B RI

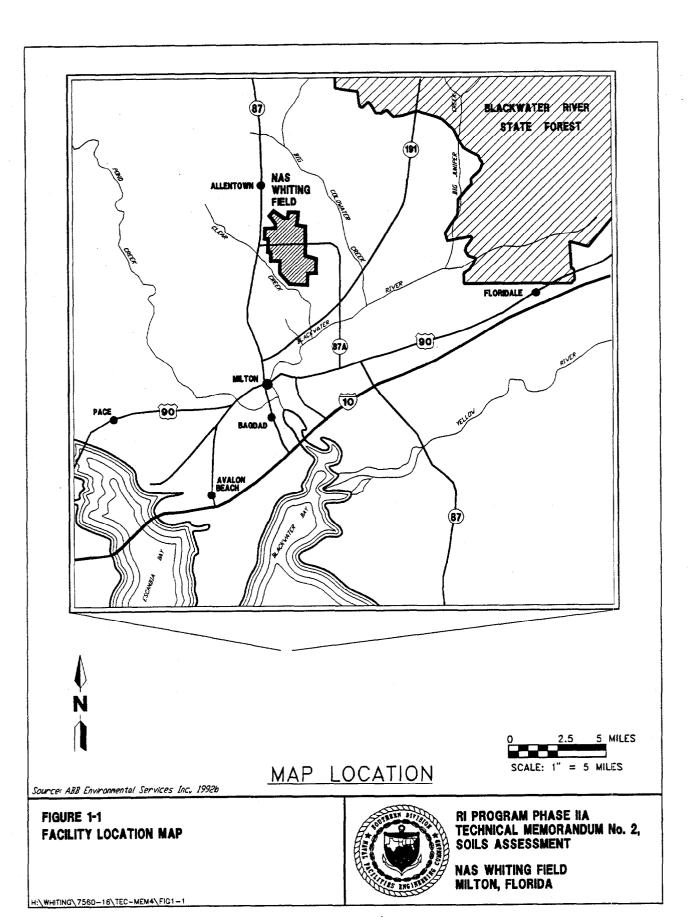
<u>Installation Location and Description</u>. NAS Whiting Field is located in Florida's northwest coastal area approximately 7 miles north of Milton and 20 miles northeast of Pensacola (Figure 1-1). NAS Whiting Field presently consists of two air fields separated by an industrial area covering approximately 2,560 acres in Santa Rosa County. Figure 1-2 presents the installation layout.

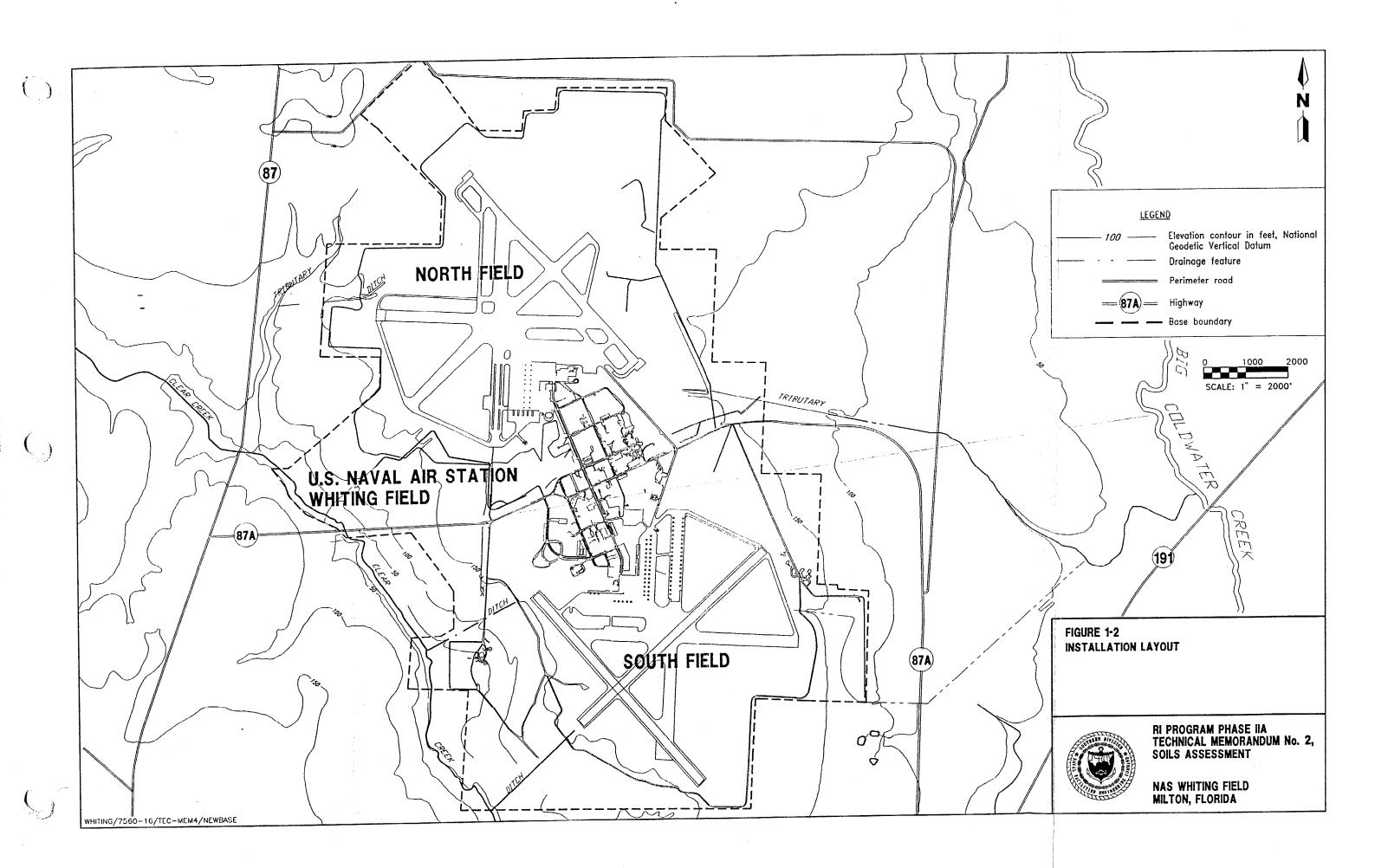
NAS Whiting Field, home of Training Air Wing Five (TRAWING FIVE), was constructed in the early 1940's. Subordinate commands currently stationed at NAS Whiting Field include: training squadrons VT-2, VT-3, VT-6, HT-8, and HT-18 (SOUTHNAV-FACENGCOM, 1988). It has served as a Naval Aviation Training Facility since being commissioned as the Naval Auxiliary Air Station Whiting Field in July 1943.

The mission of NAS Whiting Field is to train student naval aviators in the use of basic instruments, formation and tactic phases of fixed-wing and propeller-driven aircraft, and basic and advanced helicopter training.

1.1 PURPOSE OF THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS). The purpose of the NAS Whiting Field RI/FS is to identify a range of remedial alternatives to address any identified risks to public health and the environment posed by toxic or hazardous chemicals present as a result of past waste disposal practices or spills. To achieve this objective, the RI process must collect data to assess the nature and distribution of chemicals associated with each site. The data collected during the RI field program will be used in the FS to screen, evaluate, and select remedial alternatives to provide permanent, feasible solutions to environmental contamination problems at NAS Whiting Field.

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The Navy Installation Restoration (IR) program was designed to identify and abate or control contaminant migration resulting from past operations at naval installations. The IR program is the Navy response authority under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and Executive Order 12580. CERCLA requires that Federal facilities comply with the act, both procedurally and substantively. SOUTHNAVFA-CENGCOM is the agency responsible for the Navy IR program in the southeastern United States. Therefore, SOUTHNAVFACENGCOM has the responsibility to process NAS Whiting Field through Preliminary Assessment (PA), Site Investigation (SI), priority listing, RI/FS, and remedial response selection in compliance with the guidelines of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] 300).

Section 105(a)(8)(A) of SARA required the U.S. Environmental Protection Agency (USEPA) to develop criteria to set priorities for remedial action based on relative risk to public health and the environment. To meet this requirement, USEPA has established the Hazard Ranking System (HRS) as Appendix A to the NCP. The HRS is a scoring system designed to assess relative threat to public health and the environment posed by documented or potential releases of hazardous substances at a site. First promulgated in 1982, the HRS was amended in December 1990, effective March 14, 1991 (55 Federal Register No. 241:51532-51667), to comply with requirements of Section 105(c)(1) of SARA to increase the accuracy of the assessment of relative risk. The newly promulgated HRS (March 1991) has been substantially revised and is designed to prioritize sites after the SI phase of the CERCIA process. The SI or extended SI is used to present the required data to expeditiously perform an HRS ranking.

Based on the HRS score generated for the facility, on January 18, 1993, the USEPA proposed NAS Whiting Field to be included on the National Priority List (NPL) (40 CFR 300, Federal Register, Vol. 59 No. 11, January 18, 1994). On May 31, 1994, NAS Whiting Field was officially placed on the NPL (40 CFR 300, Federal Register, Vol. 59 No. 103, May 31, 1994). Subsequently, the RI/FS for NAS Whiting Field must follow the requirements of the NCP, as amended by SARA, and guidance for conducting RI/FS under CERCLA (USEPA, 1988a).

1.2 RI/FS BACKGROUND.

<u>Previous Investigations</u>. Four investigations were conducted at NAS Whiting Field prior to the implementation of the Phase IIA RI/FS (Table 1-1). The Initial Assessment Study (IAS), Confirmation Study, and RI Phase I were completed in response to CERCLA requirements. The Battery Acid Seepage Pit (Site 5) was investigated under a Consent Order with the Florida Department of Environmental Regulation (FDER; FDER has since been redesignated as the Florida Department of Environmental Protection [FDEP]). These investigations are summarized in the following sections.

Historical records reviewed during the IAS (Envirodyne Engineers, 1985) indicated that throughout the years of operation, NAS Whiting Field has generated a variety of wastes related to pilot training, the operation and maintenance of aircraft and ground support equipment, and the facility maintenance programs. Figure 1-3 provides a map showing the location of sites that have been identified for investigation at NAS Whiting Field. Prior to the establishment of hazardous

Table 1-1 Summary of Site Investigations

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			Previous Stud	ies	RI/FS Phase I	Navy's UST Program	RI/FS Phase IIA
Site Number	Site Name	IAS Verification Study	Consent Order				
1	Northwest Disposal Area	*	*		*		*
2	Northwest Open Disposal Area	*			. *		*
3	Underground Waste Solvent Storage Area	*	*		*		*
4	North AVGAS Tank Sludge Disposal Area	* *	. *			*	
5	Battery Acid Seepage Pit	*		*			*
6	South Transformer Oil Disposal Area	*	*		*		* ,
7	South AVGAS Tank Sludge Disposal Area	*	*			*	
8	AVGAS Fuel Spill Area	*	*			*	
9	Waste Fuel Disposal Pit	*	*		*		*
10	Southeast Open Disposal Area (A)	*	*		*		*
11	Southeast Open Disposal Area (B)	*	*		*		*
12	Tetraethyl Lead Disposal Area	*	*		*		*
13	Sanitary Landfill	*	*		*		*
14	Short-Term Sanitary Landfill	*	*		* *		*
15	Southwest Landfill	*.	*		*		*
16	Open Disposal and Burning Area	*	*		*		*
17	Crash Crew Training Area		*		*		*
18	Crash Crew Training Area		*		*		*
29	Auto Hobby Shop				/		*
30	Southfield Maintenance Hangar Area						*
31	Sludge Drying Beds and Disposal Areas						. *
32	Northfield Maintenance Hangar Area						*
33	Midfield Maintenance Hangar Area						*

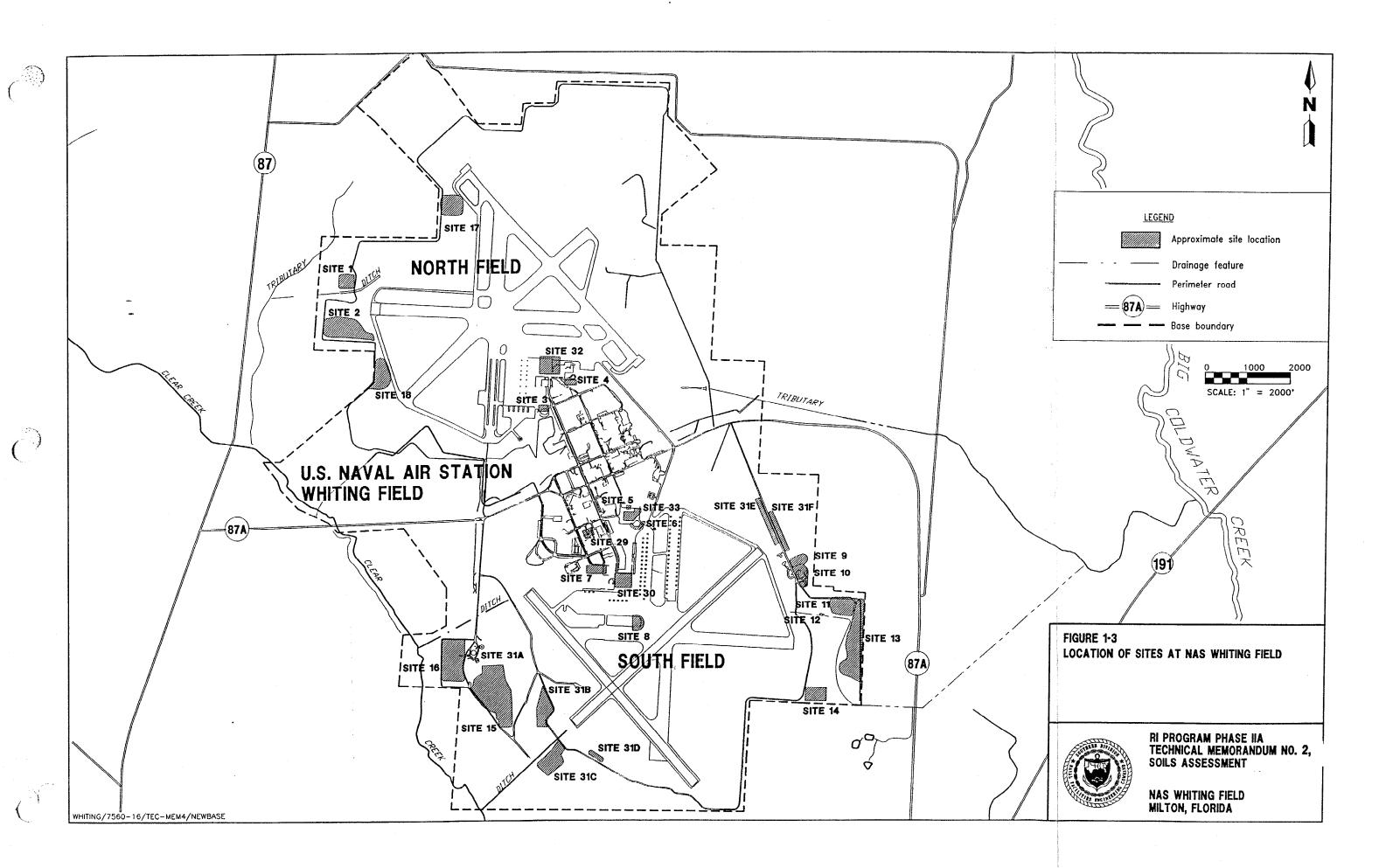
Notes: Sites 19 through 28 are located on Outlying Landing Field (OLF) Barin and are discussed in separate Technical Memoranda.

IAS = Initial Assessment Study.

RI/FS = Remedial Investigation and Feasibility Study.

UST = underground storage tank.

AVGAS = aviation gasoline.



waste management programs and programs to recycle waste oil, most of the hazardous wastes were reportedly disposed onsite. Waste materials were disposed either in dumpsters that were emptied into onsite disposal areas or they went into waste oil bowsers, which probably were used for crash crew training. Envirodyne Engineers (1985) estimated that thousands of gallons of wastes including waste paints, paint thinners, solvents, waste oils, waste gasoline, hydraulic fluids, aviation gasoline (AVGAS), tank bottom sludges, polychlorinated biphenyl (PCB) transformer fluids, and paint stripping wastewater were potentially dumped into onsite disposal areas. These disposal areas consisted of natural or man-made depressions located within the confines of the air station. In addition to the waste materials routinely disposed onsite in the disposal areas, additional materials were reportedly released onsite as the result of accidents or equipment failure.

Based on historical data, aerial photographs, field inspections, and personnel interviews, 16 disposal or spill sites of potential contamination and/or contaminant migration were initially identified at NAS Whiting Field by the IAS team.

The IAS report concluded that 15 of the 16 sites warranted further investigation, under the Navy's IR program, to assess potential long-term impacts. Only Site 2, the Northwest Open Disposal Area, was judged not to warrant further consideration.

To evaluate the 15 sites that warranted further investigation, a Confirmation Study, including sampling and monitoring of the sites, was recommended in the IAS to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems that might exist. The results of the Confirmation Study would then be used to evaluate the necessity of conducting mitigating actions or cleanup operations.

The Confirmation Study, as originally planned, consisted of two parts: verification and characterization. In November 1985, Geraghty & Miller, Inc., prepared for the Navy a plan of action for the Verification Study entitled Naval Assessment and Control of Installation Pollutants, Verification Study, NAS Whiting Field (Geraghty and Miller, 1985b), which was subsequently submitted to the FDER. This plan contained details of the proposed scope of work for the Verification Study. During discussions with FDER in December 1985, two additional sites (Sites 17 and 18) were added to the Verification Study. Both were active sites at that time where waste fuels and solvents were burned in crash crew training exercises.

In addition, during 1985 one of the sites (Site 5, Battery Acid Seepage Pit) was investigated under a Consent Order with the FDER. Data from this investigation have been compiled in a report entitled Detection and Monitoring Program, Battery Shop Site, Final Report, NAS Whiting Field, Florida (Geraghty & Miller, 1985a).

The results of the Verification Study (Verification Study, Assessment of Potential Ground-Water Pollution at Naval Air Station Whiting Field, Florida; Geraghty & Miller, 1986) provided an assessment of the physical and chemical conditions currently existing at NAS Whiting Field. Groundwater contamination was detected at some sites and not at others. The study concluded that a Characterization Study was needed to determine the nature and extent of contamination at sites requiring additional study at NAS Whiting Field.

The three-phase (IAS, Confirmation Study, and Remedial Measures) IR program was modified in 1987-88 to be congruent with CERCLA and SARA. Subsequently, the characterization study was not performed and the existing investigations were used to support the updated program. The updated nomenclature and phases include:

- PA and SI,
- RI.
- FS, and
- · planning and implementation of remedial design.

Under the updated rules, the IAS became equivalent to a PA and the first part of the Confirmation Study (the Verification Study) functioned as the SI.

The Phase I RI. In December 1990, the Phase I RI was initiated by ABB-ES. Phase I RI program addressed 14 of the 18 previously identified sites at NAS Whiting Field. Limited investigations were conducted at Sites 2 and 12 during the Phase I RI. No contamination attributable to Sites 2 and 12 was detected and no further action was proposed for both sites. Site 2, the Northwest Open Disposal Area, only received construction and demolition debris and was initially judged in the IAS to warrant no further consideration. However, at a Project Managers' meeting in Atlanta, Georgia, on November 13, 1992, USEPA and FDER requested that additional investigations be conducted at Sites 2 and 12 before no further action could be proposed. Subsequently, Sites 2 and 12 were included for further study within the IR program. Site 5 was not included in the Phase I RI. Site 5, the Battery Acid Seepage Pit, was extensively studied in 1985 (Geraghty & Miller, 1985a) under an FDER Consent Order (84-0253). indicated no significant contamination had resulted from past activities at the Battery Acid Shop and the Consent Order was recommended to be rescinded on April 15, 1987. However, the presence of benzene in samples from the existing monitoring wells surrounding the seepage pit warrants further consideration within the investigation of Site 33.

Five additional sites were identified during the Phase I RI and subsequently added to the Phase IIA RI program for contaminant assessment. The site numbers and names are as follows:

- Site 29, Auto Hobby Shop;
- Site 30, South Field Maintenance Hangar;
- Site 31, Sludge Drying Beds and Disposal Areas;
- Site 32, North Field Maintenance Hangar; and
- Site 33, Midfield Maintenance Hangar.

Site numbers 19 through 28 are not used at NAS Whiting Field because they identify sites located at Outlying Landing Field (OLF) Barin in Foley, Alabama.

The locations of all 23 NAS Whiting Field sites are shown in Figure 1-3. Table 1-2 summarizes the historical information collected for these sites.

<u>Underground Storage Tank (UST) Investigations</u>. Sites 4, 7, and 8 were previously being investigated under the Navy's UST program and, therefore, were not incorporated in the Navy's IR program. However, an agreement between the Navy, USEPA, and FDER was made during a Project Mangers' meeting at Whiting Field on July 7, 1992, to sample monitoring wells at those sites for full scan target

Table 1-2 Summary of Potential Disposal Sites

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Site No.	Site Name and Type	Location	Period of Operation	Types of Material Disposed	Comments
1	Northwest Disposal Area (landfill)	North Field, west side	1943 to 1965	Refuse, waste paints, thinners, solvents, waste oils, and hydraulic fluids.	Secondary disposal area during this period; site covers 5 acres.
2	Northwest Open Disposal Area (landfill)	North Field, west side	1976 to 1984	Construction and demolition debris, tires, and furniture.	Former borrow pit location, commonly referred to as the "Wood Dump."
3	Underground Waste Solvent Storage Area (tank)	North Field, south of Building 2941	1980 to 1984	Waste solvents, paint stripping residue, and 120-gallon spill.	Wastes generated by paint stripping operations.
4	North AVGAS Tank Sludge Disposal Area	North Field, north of Tow Lane	1943 to 1968	Tank bottom sludge containing tetraethyl lead.	Sludge disposal in shallow holes near tanks.
5	Battery Acid Seepage Pit (contaminated soil)	South Field, southwest of Building 1454	1964 to 1984	Waste electrolyte solution containing heavy metals and waste battery acid.	Pits located 110 feet from potable supply well (W-S2).
6	South Transformer Oil Disposal Area (contaminated soil)	South Field, southeast of Building 1454	1940's to 1960's	PCB-contaminated dielectric fluid.	Disposal in "0-2" drainage ditch.
7	South AVGAS Tank Sludge Disposal Area (landfill and tanks)	South Field, west of Building 1406	1943 to 1968	Tank bottom sludge containing tetraethyl lead.	Sludge disposed in shallow holes near tanks.
8	AVGAS Fuel Spill Area (contaminated soil)	South Field, south of Building 1406	Summer 1972	AVGAS containing tetraethyl lead.	Fuel spill of about 25,000 gallons on an area of about 2 acres.
9	Waste Fuel Disposal Pit (landfill)	South Field, east side	1950's to 1960's	Waste AVGAS containing tetra- ethyl lead.	Fuel disposed in former borrow pit.
10	Southeast Open Disposal Area (A) (landfill)	South Field, southeast area	1965 to 1973	Construction and demolition de- bris, waste solvents, paint, oils, hydraulic fluid, PCBs, pesti- cides, and herbicides.	Secondary disposal area during this period; site covers about 4 acres.
11	Southeast Open Disposal Area (B) (landfill)	South Field, southeast area	1943 to 1970	Construction and demolition debris, waste solvents, paint, oils, hydraulic fluid, and PCBs.	Secondary disposal area during this period; site covers about 3 acres.

Table 1-2 (Continued) Summary of Potential Disposal Sites

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Site No.	Site Name and Type	Location	Period of Operation	Types of Material Disposed	Comments
12	Tetraethyl Lead Disposal Area (waste pile)	South Field, southeast area	May 1, 1968	Tank bottom sludge and fuel filters contaminated with tetra-ethyl lead.	Disposal area posted with warning; site consists of two earth covered mounds; 25 foot by 25 foot area.
13	Sanitary Landfill (landfill)	South Field, southeast area	1979 to 1984	Refuse, waste solvents, paint, hydraulic fluids, and asbestos.	Primary sanitary landfill, potentially received hazardous wastes the first year of operation.
14	Short-Term Sanitary Landfill (landfill)	South Field, southeast area	1978 to 1979	Refuse, waste solvents, oils, paint, and hydraulic fluids.	Primary sanitary landfill for brief period; relocated due to drainage problems.
15	Southwest Landfill (landfill)	South Field, southwest area	1965 to 1979	Refuse, waste paints, oils, solvents, thinners, asbestos, and hydraulic fluid.	Primary landfill for this time period covers about 15 acres.
16	Open Disposal and Burning Area (landfill)	South Field, southwest area	1943 to 1965	Refuse, waste paints, oils, solvents, thinners, PCBs, and hydraulic fluid.	Primary disposal area for this time period; covers about 10 acres.
17	Crash Crew Training Area (contaminated soil)	North Field, west side	1951 to present	JP-4.	Waste fuels and some solvents ignit ed, then extinguished.
18	Crash Crew Training Area (contaminated soil)	North Field, west side	1951 to 1990	JP-4.	Waste fuels and some solvents ignited, then extinguished.
29	Auto Hobby Shop	Area around Building 1404	1940's to 1990	Paint, oils, and solvents	Abandoned underground waste o tanks.
30	South Field Maintenance Hangar	Area around Building 1406	1940's to present	Fuels, solvents, and oils	Abandoned underground waste o tanks.
31	Sludge Drying Beds and Disposal Areas	Wastewater Treatment Plant and along perimeter roads	1940's to present	Wastewater Treatment Plant sludge.	Sludge from beds spread on ground along perimeter road.
32	North Field Maintenance Hangar	Area around Building 1424	1940's to present	Fuels, solvents, and oils	Abandoned underground waste o tanks.
33	Midfield Maintenance Hangar	Area around Building 1454	1940's to present	Fuels, solvents, and oils	Abandoned underground waste o

compound list (TCL) and target analyte list (TAL) analytes. Based on the results of the analyses, the decision would be made to retain Sites 4 and 7 within the UST program or to transfer them into the Navy's IR program. The field work was completed between August 16 and 30, 1993, and included the collection of groundwater samples from 11 monitoring wells at Site 4 (UST Site 1467) and 19 monitoring wells at Site 7 (UST Site 1466).

The results of the UST program investigation were reported in the Jurisdiction Assessment Report (ABB-ES, 1994). The report concluded that the benzene, toluene, ethylbenzene, and xylene (BTEX) and trichloroethene (TCE) plumes at the sites are co-mingled and that petroleum contaminants could not be remediated without design considerations for TCE contamination. Based on these findings, recommendations were made in the report that the sites be returned to the IR program.

The decision by the Navy, USEPA, and FDEP to act on these recommendations is currently pending.

Site 8 (UST Site 3054) was investigated under a separate contamination assessment conducted on July 17, 1993. The results of the investigation were reported in the Contamination Assessment Report (CAR) Addendum for Site 3054 (IR Site 8), NAS Whiting Field, Milton, Florida (ABB-ES, 1993). Based on the CAR and the additional field investigation, a No Further Action Proposal (NFAP) was recommended for the site.

On January 20, 1994, the FDEP accepted the NFAP presented in the CAR Addendum and a Site Rehabilitation Completion order was signed by the Director of the Division of Waste Management.

1.3 PHASE I GEOLOGIC INVESTIGATION RESULTS AND CONCLUSIONS. Several subsurface exploration techniques were used during the Phase I investigation to further investigate the presence of contaminants, evaluate and characterize the stratigraphy at the installation, support aquifer testing in the industrial area, confirm groundwater flow direction, and further investigate the potential presence of a continuous clay confining layer throughout NAS Whiting Field. Exploration techniques included: monitoring well and piezometer installation, borehole geophysics, and piezocone penetrometer (PCPT) soundings. Lithologic descriptions for Phase I monitoring wells, piezometers, and PCPT soundings are located in Appendix A. Detailed geologic results of the Phase I RI are presented in Technical Memorandum No. 1 of the Phase I RI (ABB-ES, 1992).

Based on the evaluation of the geologic data collected during Phase I of the RI, the following conclusions were made.

- The subsurface soils at NAS Whiting Field generally consist of massive sand units interbedded with clay, silt, and gravel layers.
- The clay layers ranged in thickness from less than 1 foot to 30 feet and were encountered at depths ranging from land surface to 200 feet below land surface (bls).

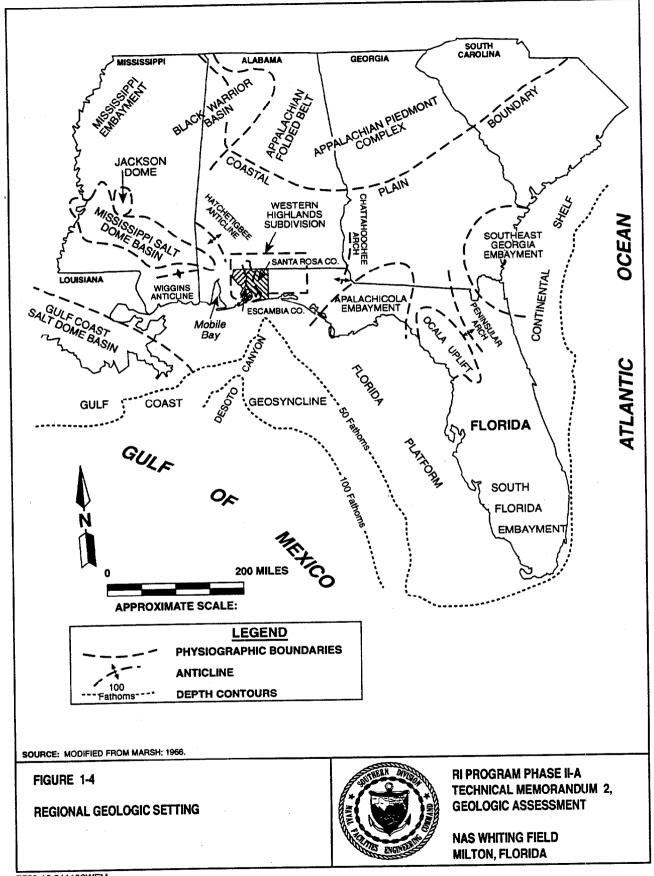
- The clay layers were composed of low to high plasticity mottled clay with low plasticity clays containing small to moderate amounts of silt and fine- to medium-grained sand.
- The silt layers were encountered less frequently than clay layers and often contained small amounts of clay and very fine-grained sand.
- The sand units were commonly composed of poorly graded sand of ery fine- to coarse-grained size.
- The gravel, when encountered, was most frequently encountered with coarse-grained sand at depths greater than 50 feet bls and in layers less than 1 foot thick.
- The presence or absence of a laterally continuous confining clay layer, above the terminal depth of the soil boring investigation, was not confirmed.
- Clay layers found to be partially continuous or continuous below the southeastern and northwestern disposal areas site groupings may create locally semi-confining conditions.

Geologic data gaps existed after the completion of the Phase I geologic assessment. Local clay layers were detected at several sites; however, the total areal extent of the investigation was insufficient to conclude that a clay layer existed throughout the installation.

- 1.4 OBJECTIVES OF THE PHASE IIA GEOLOGIC INVESTIGATION. Several conclusions concerning the lithologic conditions of the soils that underlie the installation were presented in the Phase I Geologic Assessment. However, geologic data gaps concerning the presence or absence of an extensive confining layer were not delineated. Consequently, the following objectives for the Phase IIA investigation were established:
 - further characterize the soils of the vadose and saturated zones underlying the individual sites and installation wide,
 - map local clay layers and determine the presence or absence of continuous clay layers throughout the installation, and
 - explore the stratigraphic column of the soils between the Industrial Area and the Southwestern Disposal Area (using a PCPT exploration technique).

Chapter 2.0 presents the methods used to achieve these objectives. The results of the Geologic Assessment are presented in Chapter 3.0 of this report.

1.5 GEOLOGIC SETTING. The majority of Santa Rosa County, including NAS Whiting Field, is located in the Western Highlands subdivision of the Coastal Plain Physiographic province. The Coastal Plain Physiographic province is a major division of the United States that extends eastward from Texas and as far north as New York (Marsh, 1966; Figure 1-4). The Coastal Plain is primarily underlain



by beds of sand, silt, clay, and limestone that dip gently towards the coast. Most of these sediments were deposited during periods of elevated sea levels.

The Western Highlands subdivision consists of a well drained southward sloping plateau that has been eroded by numerous streams (Scott, 1992). Three marine shorelines can be recognized from existing topographic profiles across Escambia and Santa Rosa Counties. The shoreline at 30 feet above National Geodetic Vertical Datum (NGVD) is visible as the Pimlico terrace; the Penholoway terrace represents the relic shoreline at 70 feet above NGVD, and the third shoreline is a seaward sloping upland surface ranging from 70 to 270 feet above NGVD (Marsh, 1966).

NAS Whiting Field is located on an upland area where elevations range from 50 to 190 feet above sea level. The facility is bounded by two creeks. Clear Creek is located to the west and south of the installation and Big Coldwater Creek is located to the east. The creeks are tributaries to the Blackwater River, which discharges to the estuarine waters of the East Bay of the Escambia Bay coastal system (Figure 1-1).

The southwestward dip of all the formations (down to the Cretaceous period deposits) in Santa Rosa County is explained by the fact that the area is located on the east flank of the Mississippi embayment (influencing a westward dip) and the northern flank of the Gulf Coast Geosyncline (creating a southward dip) (Marsh, 1966). The Gulf Coast geosyncline (Figure 1-4), located slightly south of the present coastline, was created by subsidence during deposition of 50,000 feet of Tertiary deposits. The local structure created by these regional features is a simple homocline with few faults and folds in northern Santa Rosa County.

<u>Stratigraphy and Lithology</u>. The subsurface geology of Santa Rosa County has more in common with the central Gulf Coast of Alabama, Mississippi, and Louisiana than it does with that of peninsular Florida. Only two peninsular Florida units (the Tampa Formation and the Ocala Group) are present within the area (Marsh, 1966).

NAS Whiting Field is underlain by a thick sequence of Tertiary sedimentary formations. A generalized geologic column of these formations is presented in Figure 1-5. The regional geologic characterization presented in this section was compiled using numerous documents prepared by the Florida Geologic Survey (Marsh, 1966; Musgrove and others, 1965; Scott, 1992) and other outside sources (see References).

The oldest formation studied in the panhandle area (Escambia and Santa Rosa Counties) is the Hatchetigbee Formation of the early Eocene series. This formation is composed of silty clay with beds of glauconitic shale and shaly limestone. The average thickness of the Hatchetigbee Formation is 315 feet (Marsh, 1966).

Overlying the Hatchetigbee is the Tallahatta Formation of middle Eocene, which consists of shale and siltstone deposits interbedded with gray limestone and well sorted sand. Above the Tallahatta is the Lisbon equivalent that has been correlated with the Lisbon Formation of Alabama. The Lisbon is approximately 500 feet thick and consists of a shaly limestone (Marsh, 1966; Scott, 1992).

GENERALIZED GEOLOGIC COLUMN OF FORMATIONS IN THE WESTERN FLORIDA PANHANDLE **GRAPHIC THICKNESS SERIES FORMATION SECTION** APPROXIMATE THICKNESS **PLEISTOCENE** MARINE TERRACE DEPOSITS: Sand, light tan, fine to coarse CITRONELLE FORMATION: Sand with lenses of clay and gravel. Sand, light-yellowish-brown to reddish-brown, very fine to very coarse and poorly sorted. Hardpan layers in PLEISTOCENE (?) 250' - 400' upper part. Logs and carbonaceous zones present in places. Fossils extremely scarce except near the coast where shell beds may be the marine equivalent of the fluvial facies of the Citronelle. MIOCENE COARSE CLASTICS: Fossiliferous sand with lenses of clay and gravel. Sand is light-gray to light-brown, very fine to very coarse and poorly sorted. Fossils abundant, mostly minute mollusks. Contains a few zones **UPPER** 100' - 300' MIOCENE of carbonaceous material. Lower part of coarse clastics present only in northern part of area, interfingering with Pensacola Clay in the central part. PENSACOLA CLAY: Formation consists of an Upper Member and Lower Member of dark-to-light-gray, tough, sandy clay; separated by the Escambia Sand Member of **UPPER MIDDLE** gray, fine to coarse, quartz sand. Contains carbonized plant fragments, and abundant mollusks and foraminifers. TO 100' - 250' Pensacola Clay is present only in southern half of area; LOWER UPPER interfingering with the Miocené coarse clastics in the MIOCENE central part. CHICKASAWHAY LIMESTONE AND TAMPA FORMATION LOWER MIOCENE AND UNDIFFERENTIATED: Tampa: Limestone, light-gray to 100' - 150' gravish-white, hard, with several beds of clay; Chickasawhay: Dolomitic limestone, gray, vesicular. **UPPER** OLIGOCENE **BUCATUNNA CLAY MEMBER OF BYRAM FORMATION:** MIDDLE 100' - 150' OLIGOCENE Clay, dark-gray soft, silty to sandy, foraminiferal, carbonaceous. OCALA GROUP: Limestone. light-gray to chalky-white **UPPER** 165 foraminifers extremely abundant, esp. Lepidocyclina; **EOCENE** corals, echinoids, mollusks, bryozoans. LISBON EQUIVALENT: Shaly limestone, dark-gray to 500 grayish-cream; hard, compact; glauconitic; with thick intervals of dense, light-gray shale. MIDDLE **EOCENE** TALLAHATTA FORMATION: Shale and siltstone, light-gray. 300' - 400' hard, with numerous interbeds of gray limestone and very fine to coarse, pebbly sand. Foraminifers locally abundant. HATCHETIGBEE FORMATION: Clay, gray to dark-gray, micaceous, silty, with beds of glauconitic shale, siltstone, LOWER and shaly limestone. Mollusks, foraminifers, corals, 315

Source: Modified from Marsh; 1966.

FIGURE 1-5

GENERALIZED GEOLOGIC COLUMN OF WESTERN FLORIDA PANHANDLE

EOCENE



RI PROGRAM PHASE II-A TECHNICAL MEMORANDUM 2 GEOLOGICAL ASSESSMENT

NAS WHITING FIELD **MILTON, FLORIDA**

echinoids. Bashi Marl Member (about 10 feet thick) at base.

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The upper Eocene series is represented by the Ocala Group. The Ocala is a light-gray limestone and averages 165 feet in thickness. Fifty-seven species of Foraminifera were identified in this group. Unconformably overlying the Ocala is the Bucatunna Clay member of the Byram Formation. The Bucatunna is a dark gray soft clay averaging 125 feet in thickness throughout the western Florida Panhandle (Marsh, 1966; Scott, 1992).

The Chickasawhay Limestone and Tampa Formation are so similar in the western Panhandle that they are presented as undifferentiated on the geologic column. The Chickasawhay is a gray dolomitic limestone and the Tampa is a light gray to white hard limestone (generally not dolomitic). These undifferentiated sediments range in thickness from 30 to 270 feet in western Florida; however, they are believed to be between 100 and 150 feet thick in northern Santa Rosa County (Marsh, 1966; Scott, 1992).

Above the Chickasawhay-Tampa Formation lies the Pensacola clay, which consists of an upper and lower member of dark to light gray, sandy clay. These two members are separated by the Escambia sand member of gray, fine- to coarsegrained sand (Marsh, 1966; Scott, 1992). The upper member of the Pensacola clay is not present in the immediate vicinity of NAS Whiting Field and the lower member is believed to pinch out north of the installation (Marsh, 1966).

Miocene coarse clastics, however, are present throughout the western Florida Panhandle. These coarse clastics are described as brown to gray, poorly sorted sand and gravel with thick lenses of clay. These sediments overlie the Chickasawhay limestone in the vicinity of NAS Whiting Field (Marsh, 1966).

The Citronelle Formation of Pleistocene age overlies the Miocene coarse clastics and is very similar in composition. The two units are differentiated by the abundance of shells in the Miocene coarse clastics. The thickness of the Citronelle Formation ranges from 40 to 800 feet in westernmost Florida, and between 250 and 400 feet in northern Santa Rosa County. The Citronelle Formation also contains layers of fossil wood, limonite cemented zones, shells, and kaolinitic burrows of aquatic animals (Marsh, 1966; Scott, 1992).

The marine terrace deposits mentioned above are thin in comparison to the Citronelle Formation and are indistinguishable from Citronelle sediments. They are typically included in the average thickness of the formation (Marsh, 1966).

In Escambia and Santa Rosa Counties, the Citronelle Formation consists principally of quartz sand that contains numerous lenses, beds, and stringers of clay and gravel. The lithology changes abruptly over short distances. The sand is typically light yellowish brown to reddish brown, although some is white or The grains are typically angular to subangular and very poorly light grey. sorted, ranging from very fine- to very coarse-grained. Clay occurs in lenses as thick as 60 feet and is primarily white or grey in color, although lavender and yellow brown are not uncommon. The rapid facies changes, absence of fossils, and presence of sand and gravel suggest that the shallow sediments of the sand and gravel aquifer were deposited in an environment similar to the current Mississippi River delta. The sediments were probably deposited in stream channels that continually shifted back and forth across the face of the delta. The clay lenses were deposited in quiet pools or abandoned channels whereas the gravel was deposited in swift moving streams nearby (Musgrove and others, 1965).

2.0 SUMMARY OF GEOLOGIC FIELD INVESTIGATION

The Phase IIA geologic field investigation included a PCPT investigation, a soil boring investigation, and monitoring well installations. The investigations were conducted between October 1992 and August 1993. A total of 57 subsurface soil borings were drilled at 9 of the RI sites; 76 monitoring wells were installed at 17 sites; and 7 PCPT soundings were completed between the Industrial Area and the Southwest Disposal Area. Detailed lithologic descriptions for all soil borings, monitoring wells, and PCPT soundings are located in Appendices B, C, and D, respectively. In addition to the data generated from these operations, lithologic descriptions of monitoring wells installed during the ABB-ES UST investigation were used in this report to provide additional lithologic information and to more accurately describe the extent of the clay layer in the industrial area (Appendix E).

2.1 SOIL BORING INVESTIGATION. The soil boring program was conducted from December 1992 to January 1993. A total 57 subsurface soil borings were completed at Sites 2, 3, 6, 17, 18, 29, 30, 32, and 33. These sites are located within the Industrial Area and the northwest area of the facility. Table 2-1 summarizes the number of soil borings completed at each site along with their total depths and completion date.

The soil boring investigation used a hollow-stem auger drilling technique. The augers were typically advanced in 5-foot intervals at which depths a standard penetration test (SPT) was conducted and a 2-foot split-spoon sample was collected for visual inspection by an ABB-ES geologist. All data were entered into a bound log book. Detailed soil descriptions, SPT results, and other pertinent data are presented in the boring logs for the soil boring investigation located in Appendix A of this Technical Memorandum.

2.2 MONITORING WELL INSTALLATION PROGRAM. Monitoring well installations were conducted in conjunction with the hydrogeologic and groundwater investigations (summarized in Technical Memoranda 4 and 5, respectively). Seventy-six monitoring wells were installed at 17 sites and 3 background locations.

In addition to the data generated during the Phase IIA RI, data collected during the Phase I RI (ABB, 1992), the Verification Study (Geraghty & Miller, 1986), and the ABB-ES UST program were also reviewed to augment the data from the current investigation. However, the lithologic descriptions presented in the Verification Study were significantly different than descriptions of adjacent borings drilled during more recent studies. The lack of detail in the boring logs made correlation with more recent borings impossible. Because the accuracy of the older descriptions could not be verified against archived samples, as is the case with Phase IIA RI samples, the data were not included in the cross sections. The installation dates and total boring depths for Phase IIA wells are summarized in Table 2-2. Details for monitoring wells installed during the Phase I RI and the Verification Study are summarized in Table 2-3. Lithologic data were also recorded during monitoring well installation. Split-spoon samples were generally collected at 5-foot intervals during drilling of the monitoring wells. However, it was common to skip sampling intervals when lithologic data were available from proximal soil borings and/or monitoring wells.

Table 2-1 Summary of Phase IIA Soil Borings

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Boring Designation	Completion Date	Total Boring Depth, (feet bls)	Boring Designation	Completion Date	Total Boring Depth (feet bls)
Site 2			Site 29		
WHF-2-SB-1	7-30-93	70	WHF-29-SB-1	01-08-93	137
			WHF-29-SB-2	01-06-93	14
Site 3			WHF-29-SB-3	01-06-93	12
WHF-3-SB-1	01-20-93	27	WHF-29-SB-4	01-06-93	17
WHF-3-SB-2	01-09-93	12	WHF-29-SB-5	01-06-93	17
WHF-3-SB-3	01-10-93	12			
WHF-3-SB-4	01-10-93	12	Site 30		
WHF-3-SB-5	01-08-93	12	WHF-30-SB-1	12-08-92	122
WHF-3-SB-6	01-08-93	102	WHF-30-SB-2	01-04-93	22
WHF-3-SB-7	01-27-93	22	WHF-30-SB-3	01-04-93	17
WHF-3-SB-8	01-08-93	12	WHF-30-SB-4	01-05-93	27
WHF-3-SB-9	01-08-93	32	WHF-30-SB-5	01-05-93	17
WHF-3-SB-10	01-08-93	17	WHF-30-SB-6	01-05-93	17
			WHF-30-SB-7	01-05-93	12
Site 6					
WHF-6-SB-1	12-04-92	22	Site 32		
WHF-6-SB-2	12-04-32	22	WHF-32-SB-1	01-09-93	52
WHF-6-SB-3	12-05-92	119	WHF-32-SB-2	01-09-93	14
WHF-6-SB-4	12-04-92	22	WHF-32-SB-3	01-09-93	22
			WHF-32-SB-4	01-10-93	47
Site 17			WHF-32-SB-5	01-19-93	110
WHF-17-SB-1	01-19-93	17	WHF-32-SB-6	01-11-93	47
WHF-17-SB-2	01-19-93	12	WHF-32-SB-7	01-20-93	32
WHF-17-SB-3	01-07-93	12	WHF-32-SB-8	01-21-93	15
WHF-17-SB-4	01-19-93	12			
WHF-17-SB-5	01-07-93	22	Site 33		
WHF-17-SB-6	01-07-93	17	WHF-33-SB-1	12-03-92	27
WHF-17-SB-7	01-18-93	17	WHF-33-SB-2	12-03-92	122
WHF-17-SB-8	01-18-93	12	WHF-33-SB-3	12-01-92	22
WHF-17-SB-9	01-06-93	12	WHF-33-SB-4	12-02-92	24
			WHF-33-SB-5	12-06-92	22
Site 18			İ		
WHF-18-SB-1	01-05-93	10			
WHF-18-SB-2	01-05-93	22	i		
WHF-18-SB-4	01-05-93	42			
WHF-18-SB-6	01-04-93	25			
WHF-18-SB-7	01-05-93	15			
WHF-18-SB-8	01-04-93	25	1		
WHF-18-SB-9	01-05-93	15			•
WHF-18-SB-10	01-04-93	15			

Notes: Soil boring designations WHF-18-SB-3 and WHF-18-SB-5 were not used because proposed borings were not drilled.

bis = below land surface.

Table 2-2 Summary of Phase IIA Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Completion Date	Total Depth (feet BTOC)	Surface Casing (feet bis)
WHF-BKG-1	05-09-93	121.6	0
WHF-BKG-2	04-27-93	109.22	0
WHF-BKG-3	04-26-93	80.5	0
Site 1			
WHF-1-1S	06-28-93	75.4	0
WHF-1-2	02-21-93	78.8	0
WHF-1-3	06-29-93	87.48	0
Site 2			
WHF-2-1	07-17-93	87.42	0
Site 3			
WHF-3-1D	06-11-93	180.29	104
WHF-3-1S	06-12-93	123.22	105
WHF-3-2D	05-10-93	176.17	0
WHF-3-2S	05-08-93	114.12	0
WHF-3-3D	05-12-93	180.57	112.5
WHF-3-3S	05-06-93	110.8	0
WHF-3-4	07-31-93	121.45	103
WHF-3-7D	05-25-93	180.54	109
WHF-3-71	05-26-93	139.92	109
WHF-3-7S	06-03-93	123.8	109
Site 5			
WHF-5-8D	04-24-93	174.18	0
WHF-5-8S	03-23-93	128.15	0
WHF-5-9D	04-22-93	180.47	107
WHF-5-9S	04-25-93	128.74	108
WHF-5-10D	03-07-93	183.32	117
WHF-5-10S	04-24-93	144.71	119
Site 6			
WHF-6-1D	05-19-93	180.47	112
WHF-6-1S	05-20-93	134.33	112
WHF-6-3	05-09-93	123.45	0

Table 2-2 (Continued) Summary of Phase IIA Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Completion Date	Total Depth (feet BTOC)	Surface Casing (feet bls)
Site 9		,,	
WHF-9-3	02-25-93	108.24	77
Site 10			
WHF-10-2	03-23-93	113.14	85
Site 11			
WHF-11-1S	07-21-93	54.4	0
WHF-11-3	03-09-93	73.16	46
Site 13			
WHF-13-1S	07-20-93	61.3	0
WHF-13-2	03-18-93	72.41	42
Site 14			
WHF-14-2	03-22-93	118.3	94
Site 15			
WHF-15-2I	02-04-93	63.2	0
WHF-15-2S	02-04-93	32.9	0
WHF-15-2D	07-18-93	112.44	0
WHF-15-3D	01-26-93	119.48	0
WHF-15-31	02-02-93	87.83	0
WHF-15-3S	02-01-93	37.94	0
WHF-15-4	04-28-93	109.15	0
WHF-15-5	02-08-93	68.18	0
WHF-15-6D	02-08-93	123.36	. 0
WHF-15-6S	02-08-93	43.73	0
Site 16			_
WHF-16-2I	02-18-93	130.14	0
WHF-16-2\$	02-21-93	49.8	0
WHF-16-3D	01-24-93	118.08	0
WHF-16-3I	01-26-93	52.87	0
WHF-16-3II	01-25-93	78.91	0
WHF-16-3S	01-22-93	23.25	0
WHF-16-4D	02-18-93	122.54	65
WHF-16-4II	02-05-93	64.8	0
WHF-16-4S	02-04-93	22.38	0
WHF-16-5	07-27-93	10	0

Table 2-2 (Continued) Summary of Phase IIA Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Completion Date	Total Depth (feet BTOC)	Surface Casing (feet bis)
Site 17			
WHF-17-1S	07-27-93	115.5	36.5
WHF-17-2	03-07-93	121.9	43
WHF-17-3	07-16-93	126.5	0
Site 18			
WHF-18-2	02-22-93	107.86	0
WHF-18-3	06-27-93	112.9	0
Site 29			
WHF-29-1	06-08-93	139.48	0
WHF-29-2	06-13-93	136.9	0
WHF-29-3	06-11-93	139.64	0
WHF-29-4	06-10-93	139.1	. 0
WHF-29-5	06-09-93	132.14	0
Site 30			
WHF-30-3	06-16-93	134.6	0
WHF-30-4	06-26-93	135.44	0
WHF-30-5	06-25-93	157.53	0
Site 32			
WHF-32-1	01-22-93	110.04	0
WHF-32-2	06-28-93	110.54	0
WHF-32-3	06-26-93	110.02	0
WHF-32-4	06-29-93	110.25	0
WHF-32-5	05-24-93	109.61	0
Site 33			
WHF-33-1	06-15-93	127.44	0
WHF-33-2	06-25-93	128.4	0
WHF-33-3	06-25-93	128.44	0
WHF-33-4	06-16-93	127.94	0
WHF-33-5	05-21-93	125.9	0

Notes: BTOC = below top of casing. bls = below land surface.

Table 2-3 Summary of Phase I RI, Verification Study and Underground Storage Tank (UST) Program Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Designation	Completion Date	Total Depth (feet BTOC)	Surface Casing (feet bis)
	Phas	e i Ri	
WHF-3-3	01-07-91	151	118
WHF-9-2	12-13-90	120	85
WHF-11-2	12-01-90	125	80
WHF-16-2	12-15-90	70	0
WHF-5-OW-1	03-04-91	175	126
WHF-5-OW-2	01-31-91	123	126
	Verificat	ion Study	
WHF-1-1	* '	122.5	0
WHF-3-1	*	152.5	0
WHF-3-2	*	152.5	0
WHF-4-1	*	152.5	0
WHF-7-1	*	142.5	. 0
WHF-8-1	*,	180.0	• 0
WHF-9-1	*	117.5	0
WHF-10-1	*	117.5	0
WHF-11-1	*	127.5	0
WHF-12-1	*	112.5	0
WHF-13-1	*	112.5	0
WHF-14-1	*	152.5	0
WHF-15-1	*	72.5	o
WHF-16-1	*	42.5	0
WHF-17-1	*	152.5	· o
WHF-18-1	*	122.5	0

WHF-RIFS.TM2 MVL11.94

Table 2-3 (Continued) Summary of Phase I RI, Verification Study and Underground Storage Tank (UST) Program Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Number	Completion Date	Actual Depth (feet)	Surface Casing (feet)
	UST Pr	ogram	
Site 1466 (Site 7)			
WHF-1466-1	1-26-92	135	0
WHF-1466-1D	5-12-92	163	138
WHF-1466-2	3-14-92	120	0
WHF-1466-2D	5-10-92	144	132
WHF-1466-3	3-15-92	145	0
WHF-1466-3D	5-11-92	149	126
WHF-1466-4	3-16-92	151	0
WHF-1466-5R	6-04-92	132	0
WHF-1466-6	3-25-92	131	0
WHF-1466-7	3-26-92	131	0
WHF-1466-8	3-27-92	131	0
WHF-1466-9	3-27-92	116	0
WHF-1466-10	3-28-92	122	0
WHF-1466-11	3-29-92	104	0
WHF-1466-12	3-30-92	147	0
WHF-1466-13	5-21-92	130	0
WHF-1466-14	5-22-92	135	0
WHF-1466-15	5-22-92	135	0
WHF-1466-16	5-23-92	135	0 -
WHF-1466-17	5-24-92	134	0
WHF-1466-18	5-25-92	135	0
WHF-1466-19	5-26-92	145	0
WHF-1466-20	5-26-92	140	0
Site 1467 (Site 4)			
WHF-1467-1	1-07-92	97	0
WHF-1467-2	1-08-92	85	0
WHF-1467-3	1-08-92	95	0
WHF-1467-4	1-09-92	103	0
WHF-1467-5	1-10-92	100	0
WHF-1467-5D	4-08-92	140	0

Table 2-3 (Continued) Summary of Phase I RI, Verification Study and Underground Storage Tank (UST) Program Monitoring Well Installations

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

Monitoring Well Number	Completion Date	Actual Depth (feet)	Surface Casing (feet)
	UST Program	n (continued)	
WHF-1467-6	1-10-92	103	. 0
WHF-1467-6D	5-24-92	102	88
WHF-1467-7	1-11-92	85	0
WHF-1467-7D	5-23-92	129	96
WHF-1467-8	1-11-92	107	0 ·
WHF-1467-8D	5-22-92	127	106
WHF-1467-9	1-12-92	100	0
WHF-1467-10	1-25-92	82	0
WHF-1467-11	1-25-92	90	0
WHF-1467-12	1-27-92	83	0
WHF-1467-13R	5-20-92	90	0
WHF-1467-14	3-11-92	110	0
WHF-1467-15	3-11-92	109	0
WHF-1467-16	3-12-92	115	• 0
WHF-1467-17	3-13-92	106	0
WHF-1467-18	3-13-92	115	0
WHF-1467-19	3-14-92	105	0
WHF-1467-20	4-10-92	110	0
WHF-1467-21	4-21-92	111	0
WHF-1467-22R	4-22-92	103	0
WHF-1467-23	4-22-92	101	0
WHF-1467-24	4-23-92	100	0
WHF-1467-25	4-24-92	91	. 0
WHF-1467-26	4-25-92	90	0
WHF-1467-27	4-26-92	116	0
WHF-1467-28	4-27-92	106	0
WHF-1467-29	4-28-92	100	0
WHF-1467-30	4-29-92	103	0
WHF-1467-31	5-09-92	125	0
WHF-1467-32	5-11-92	100	0
WHF-1467-33	5-12-92	84	0

Notes: * = completion date was not provided in the Verification Study.

BTOC = below top of casing. bls = below land surface. RI = Remedial Investigation UST = underground storge tank Monitoring wells were installed using both hollow-stem auger and mud rotary drilling techniques. The mud rotary technique was used at locations where the boring depth exceeded the surface of the water table. The technique uses heavy drilling mud to circulate out the cuttings and to restrict the formation sand from collapsing.

2.3 PIEZOCONE PENETROMETER (PCPT) INVESTIGATION. Seven PCPT explorations were performed in accordance with American Society for Testing and Materials (ASTM) Designation: D3441-86 Standard ASTM Method for Deep, Quasi-Static, Cone, and Friction-Cone Penetration Tests of Soils, Vol. 4.08, 1994. Specifically, a stainless-steel cone tip (equipped with electronic sensors) connected to stainless-steel rods was hydraulically driven into the overburden soils. Measurements of end-bearing resistance, friction resistance, and pore pressure were recorded from the sensors throughout each sounding. The analog signals from the cone tip sensors were digitized for data logging and analyses of the digital data was completed in the field using a data acquisition software system. Based on the cone readings, a lithologic description of the soils was computed with the aid of the software package.

The cone tip was advanced until the friction resistance of the overburden soils exceeded the power of the hydraulic system. All seven explorations were terminated, due to refusal, before attaining the desired depth of 180 feet. In order to obtain additional data beyond the maximum PCPT exploration depth, a drill rig, using mud rotary techniques, was used to extend the explorations. The primary purpose of extending the boring explorations was to collect in-situ groundwater samples using the Bengt-Arne-Torstensson (BAT) screening technique. However, during drill operations, occasional split-spoon samples were collected to identify the subsurface lithology and potential groundwater sampling The BAT in-situ groundwater sampling technique will be fully locations. described in Technical Memorandum No. 5, Groundwater Assessment. A summary of the sounding designations, completion dates, and proposed and actual depths are provided in Table 2-4. The lithologic descriptions for the sounds are presented in Appendix D.

Table 2-4
Summary of Piezocone Penetrometer (PCPT) Soundings

Technical Memorandum No. 2 Geologic Assessment NAS Whiting Field, Milton, Florida

PCPT Sounding Designations	Completion Date	Proposed Depth (feet bis)	PCPT Sounding Actual Depth (feet bis)	Maximum Lithologic Sample Depth (feet bls)
WHF-2A-CPT-01	10-12-92	180	97	132
WHF-2A-CPT-02	10-12-92	180	130	152
WHF-2A-CPT-03	10-13-92	180	96	142
WHF-2A-CPT-04	10-14-92	180	105	142
WHF-2A-CPT-05	10-14-92	180	110	122
WHF-2A-CPT-06	10-15-92	180	99	131
WHF-2A-CPT-07	10-15-92	180	85	85

Notes: Piezocone penetrometer sounding depths were extended using a mud rotary drilling technique.

bis = below land surface.

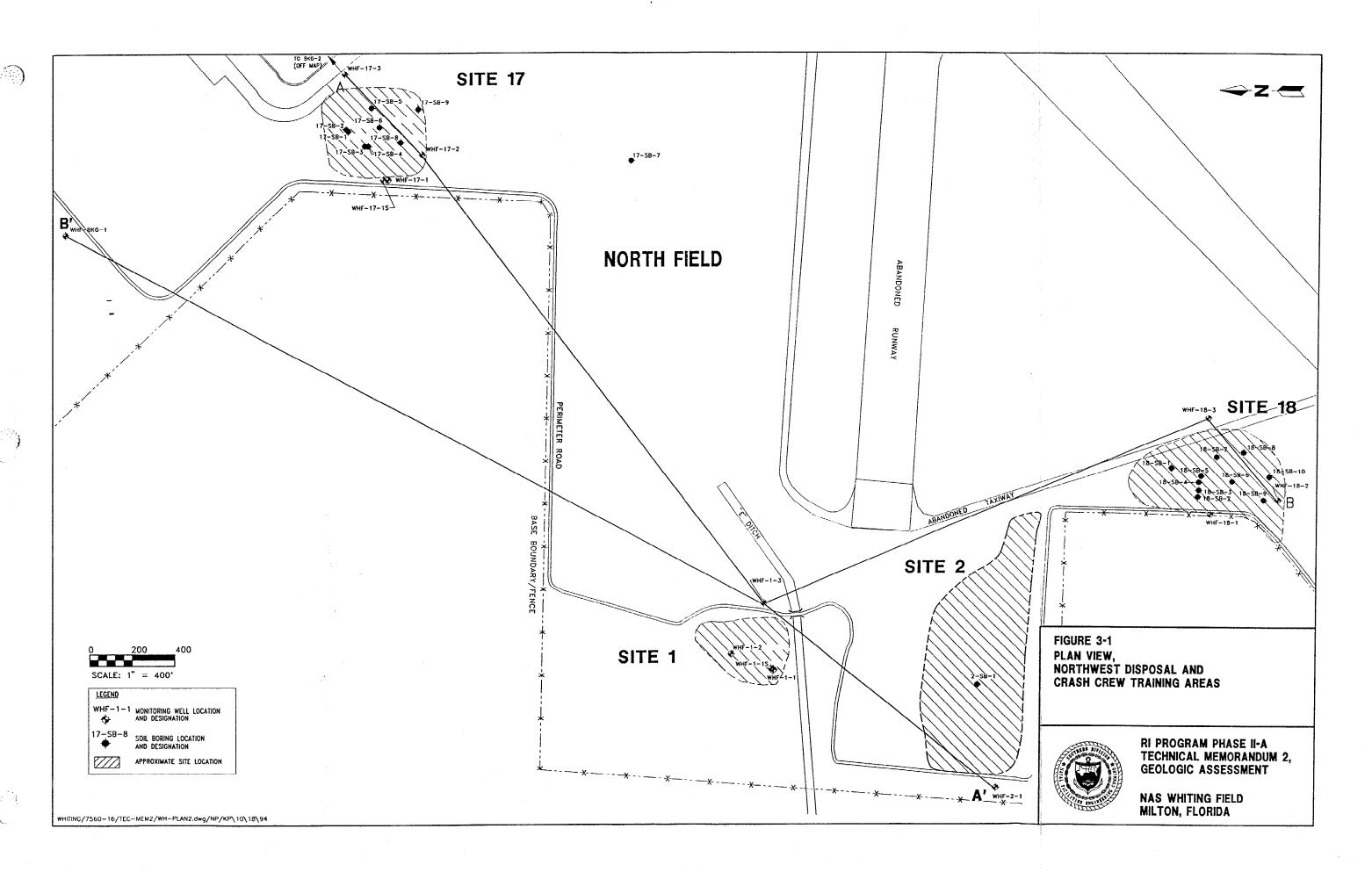
3.0 RESULTS AND INTERPRETATIONS

This chapter presents and interprets the results of the Phase IIA geologic investigation. The interpreted results were used to depict the geologic conditions at NAS Whiting Field. Area-specific, site-specific, and installation-wide findings are summarized in the following sections.

- 3.1 AREA-SPECIFIC FINDINGS. The following sections summarize lithologic and stratigraphic conditions in the four main areas investigated during the Phase II-A, Geologic Assessment. The areas contain numerous sites that are in close enough proximity to share similar geologic characteristics. Site-specific descriptions for various sites may also be included in this section. A map of each area is presented within Section 3.1. The four areas and the sites that they contain are as follows:
 - the Northwest Disposal and Firefighter Training Areas (Sites 1, 2, 17, and 18),
 - the Southwest Disposal Area (Sites 15 and 16),
 - the Southeast Disposal Area (Sites 9, 10, 11, 12, 13, and 14), and
 - the Industrial Area (Sites 3, 4, 7, 32, 5, 6, 33, 29, and 30).
- 3.1.1 Northwest Disposal and Crash Crew Training Areas The Northwest Disposal and Crash Crew Training Areas encompass Sites 1, 2, 17, and 18 (Figure 3-1). Data from 18 shallow soil borings completed at Sites 17 and 18 (Table 2-1), a deep soil boring at Site 2, and lithologic descriptions from Phase IIA monitoring wells (Table 2-2) were used to generate cross sections (Figures 3-2 and 3-3) and describe geologic conditions.

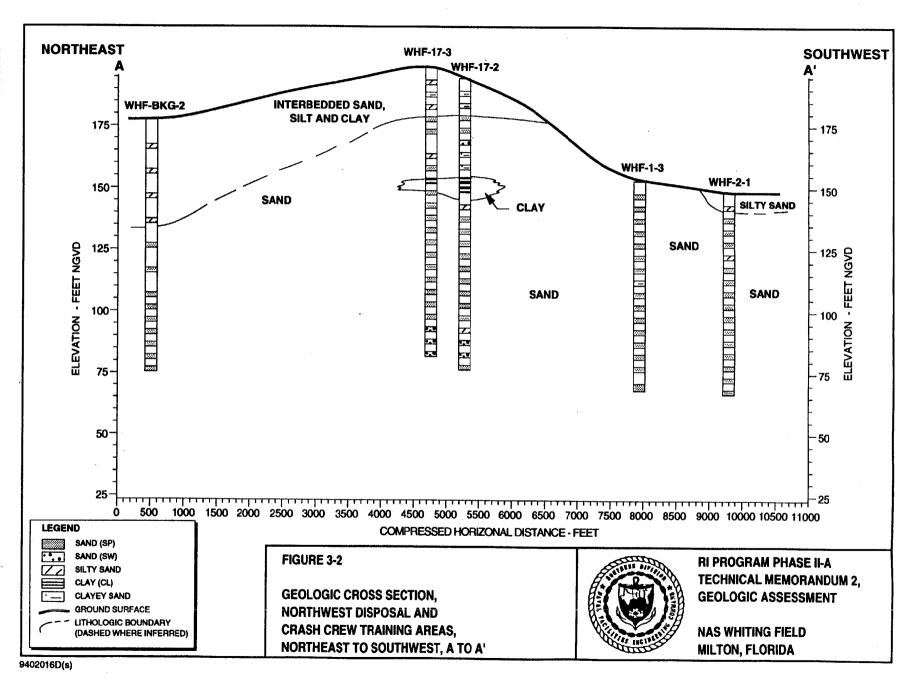
The lithology of the area consists of light colored, poorly graded (fine- to medium-grained) sands. Layers of clay and silt were thin and infrequent below 20 feet (Figures 3-2 and 3-3). The shallow soil, when not excavated from the site (Sites 1 and 2 were previously used as clay pits), tended to be darker in color and contained significant amounts of clay and silt (interbedded sand silt and clay layers). Detailed descriptions can be found in the boring and monitoring well logs located in Appendices B and C.

A continuous clay layer is not present in the northwest section of the installation (Figures 3-2 and 3-3). A significant clay layer (greater than 4 feet) was encountered at Site 17 (WHF-17-2) and may extend over the entire site. The clay layer becomes sandy in WHF-17-3 and appears to grade vertically downward from a plastic clay to a sandy clay in WHF-17-1S. Figure 3-4 depicts a possible correlation of clay observed during soil borings for monitoring wells at Site 17 (Appendix C, detailed lithologic descriptions). Sites 1, 2, and 18 did not contain significant clay layers (Figures 3-2 and 3-3). The terminal depths of the borings and monitoring wells in this area were not sufficient to correlate with the clay of the Industrial Area.



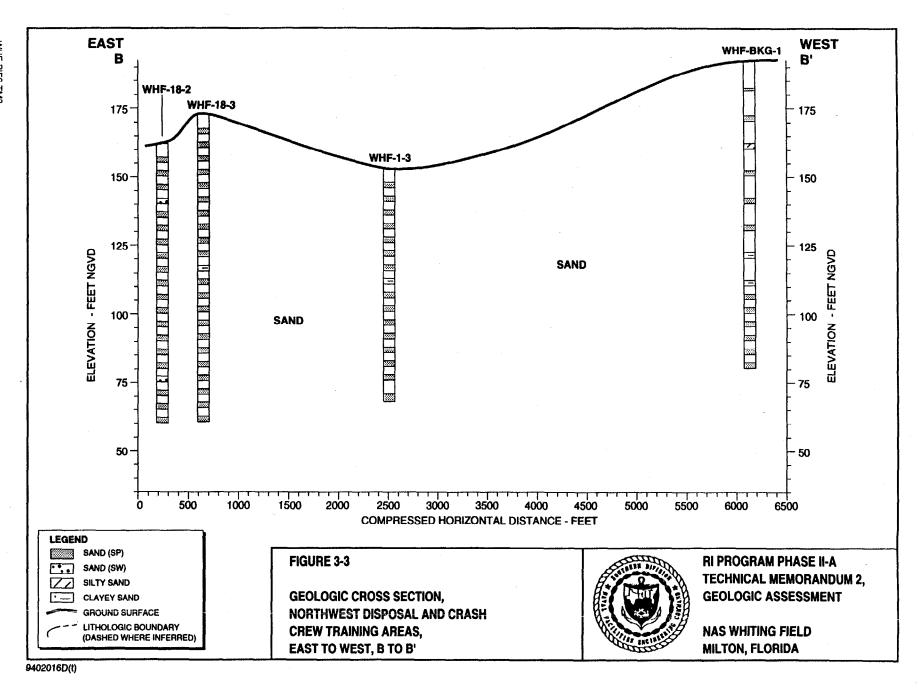


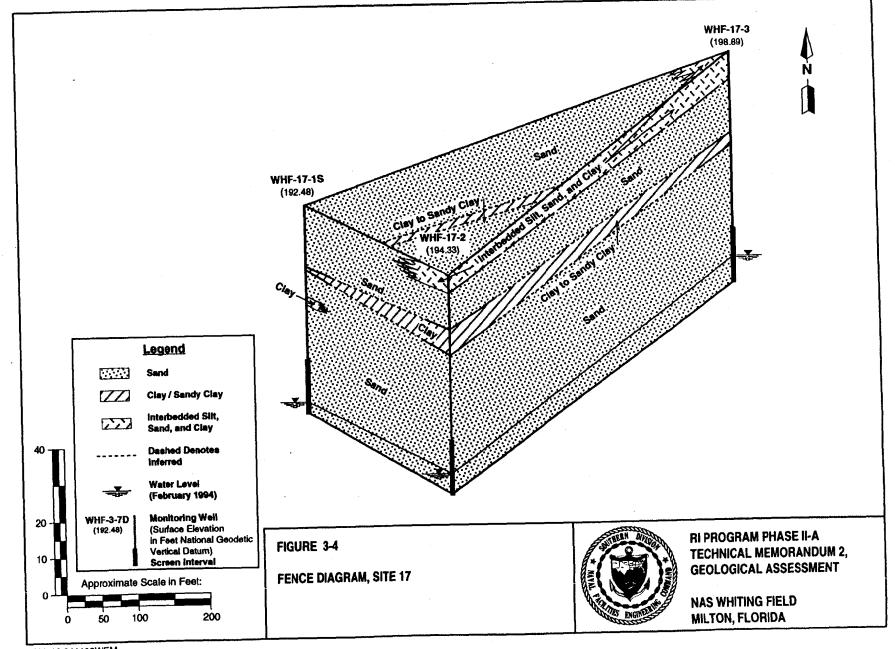












3.1.2 Southwest Disposal Area The Southwest Disposal Area encompasses Sites 15 and 16 (Figure 3-5). Data from 20 monitoring wells (Table 2-2 and Appendix C) and 7 PCPT soundings (Table 2-4 and Appendix D) completed during the Phase IIA RI were used to generate cross sections (Figures 3-6, 3-7, and 3-8) and to characterize the subsurface geology of the area.

The most abundant subsurface soil type encountered in the area consisted of poorly graded (fine- to medium-grained) sands displaying various shades of yellow, brown, and grey. Layers of well graded sands, clay, and silt were common to the deep monitoring wells at both sites (Appendix C). The soil from shallow depths (referred to as interbedded sands, silts, and clays on cross sections) tended to be darker in color and contain significant amounts of clay and silt.

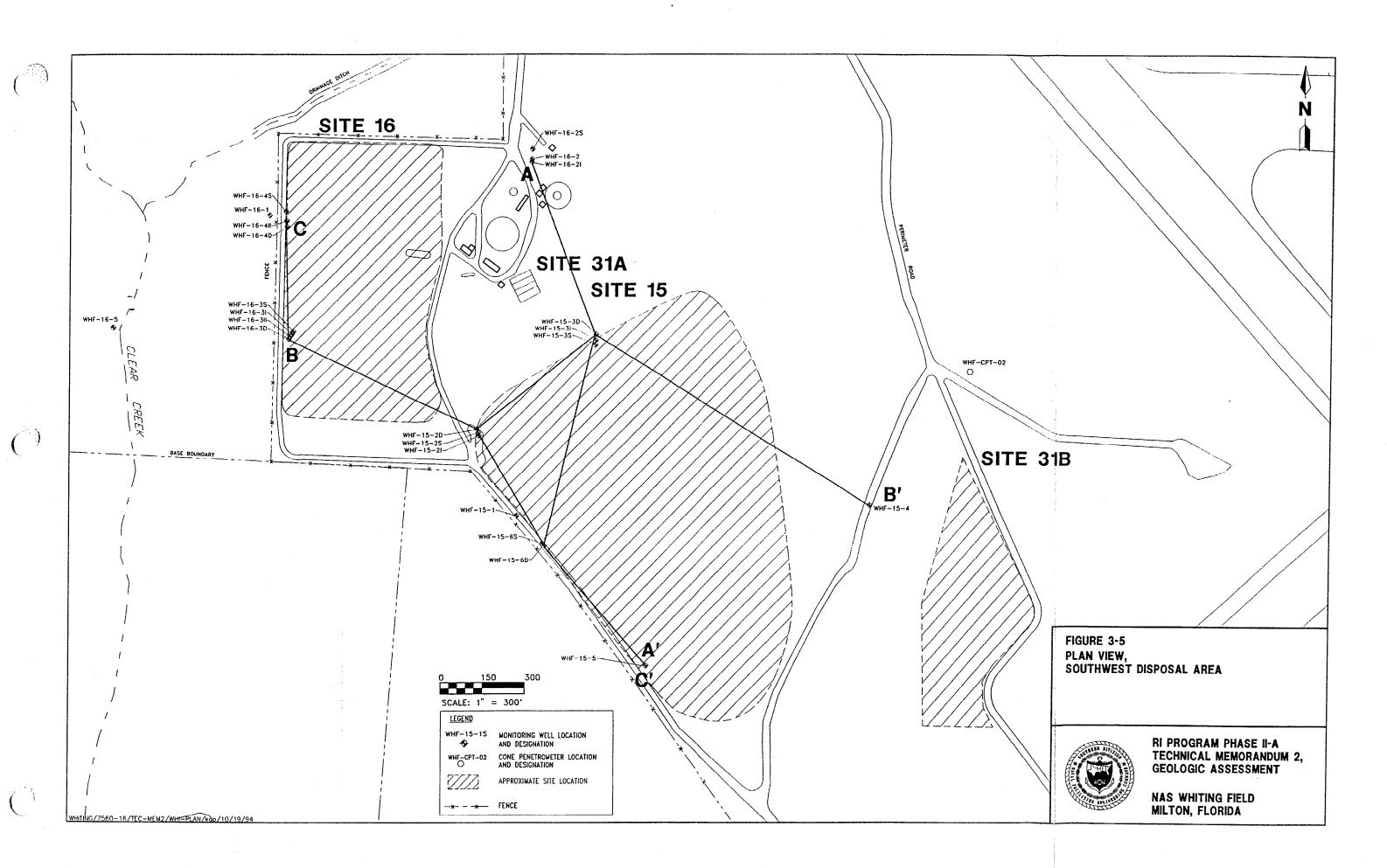
A continuous clay layer is not present in the southwest section of the installation (Figures 3-6, 3-7, and 3-8). A significant clay layer (greater than 3 feet) was encountered at both Sites 15 and 16 (Figures 3-6, 3-7, and 3-8); however, the layer was not present in all the wells indicating it may be discontinuous in the Southwest Disposal Area. In the case of Site 16, the clay layer was discovered beneath the northern part of the landfill (WHF-16-4D) but not in the southern part of the site. Clay was detected at Site 15 in monitoring wells WHF-15-3D and WHF-15-5. The layers were relatively thin and discontinuous. A clay layer exceeding 30 feet in thickness was detected at a depth of 65 feet below NGVD in monitoring well WHF-16-2D. However, this depth is well below the terminal depths of the remaining wells in the area and the wells in the rest of the installation. Therefore, the continuity of this clay layer could not be confirmed.

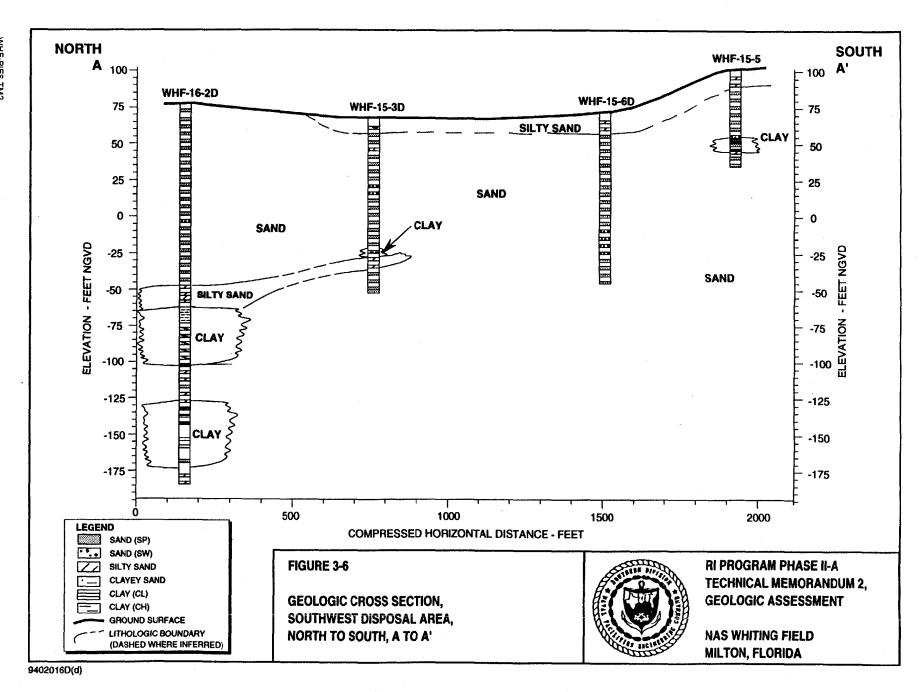
3.1.3 Southeast Disposal Area The Southeast Disposal Area encompasses Sites 9, 10, 11, 12, 13, and 14 (Figure 3-9). Lithologic data from seven monitoring well borings completed during the Phase IIA RI (Table 2-2), one well boring from the Phase I RI (WHF-9-2), and one Verification Study well (WHF-11-1) were used to generate cross sections (Figures 3-10, 3-11, and 3-12) and to characterize the subsurface geology of the area.

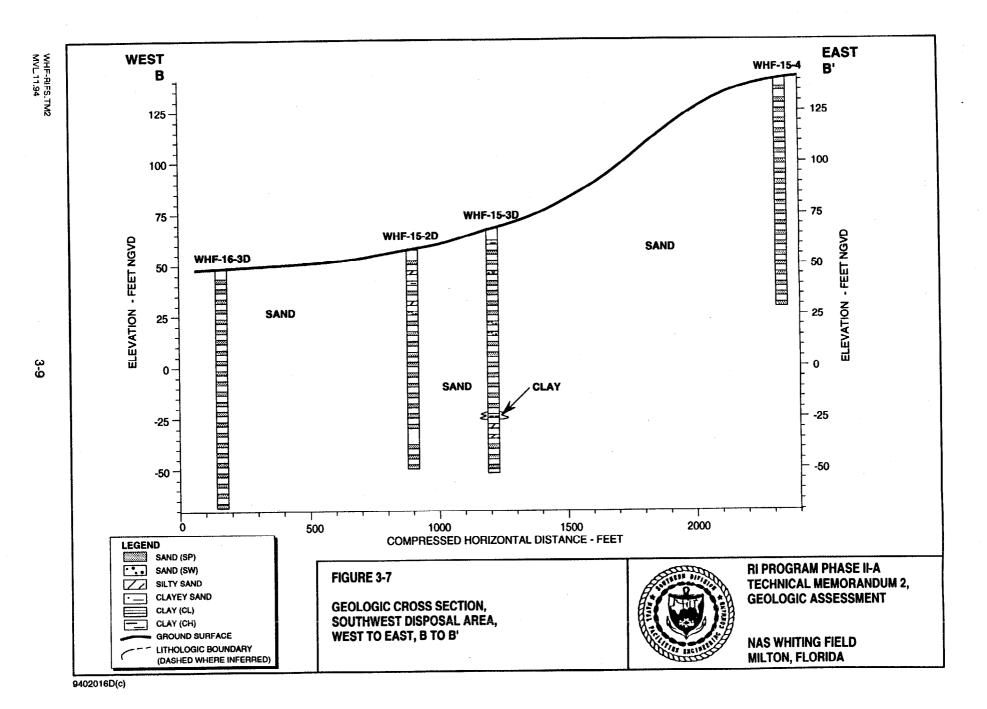
Although Site 31 is located in this area, a subsurface investigation was not performed at the site. A discussion of the site will be presented in Technical Memorandum No. 3, Soils Assessment.

The most abundant subsurface soil types encountered in the area consisted of various shades of yellow, red, and brown silt and sand overlying well graded sands. At Sites 10 and 11 the interbedded sand, silt, and clay layer overlays a layer (15 to 20 feet thick) of silty sand. Stringers of clay and poorly graded sands were common throughout the area (Appendix C).

The subsurface soil encountered at Site 14 (monitoring well WHF-14-2) was predominantly poorly graded sand common to the Southeast Disposal Area (see Appendices A and C). A clay layer was encountered at 48 feet NGVD; however, due to its separation distance and position with respect to the other sites in the area, it was not included in the cross sections. It is uncertain whether the layer is continuous throughout Site 14 and/or the area.

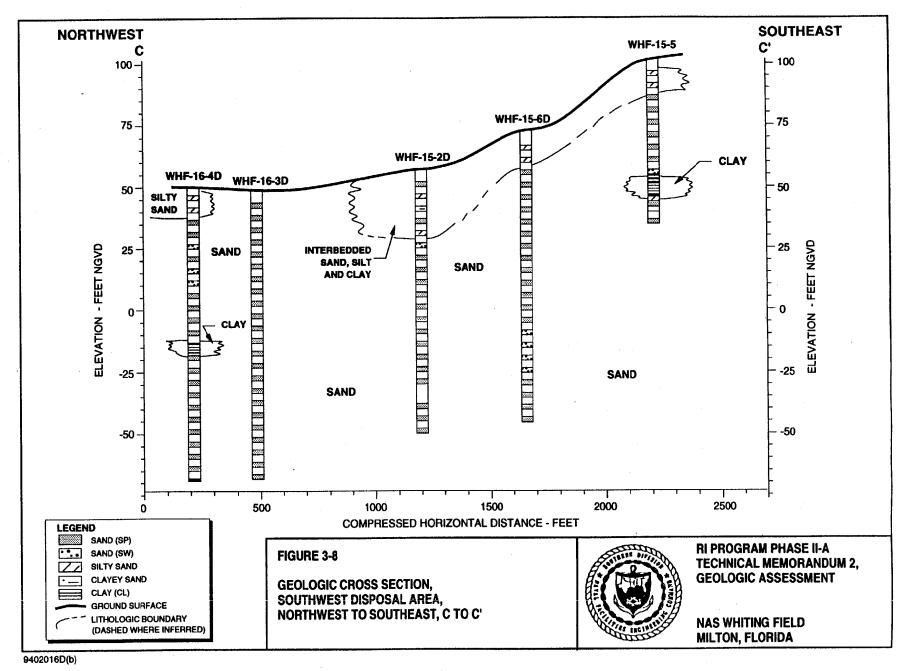


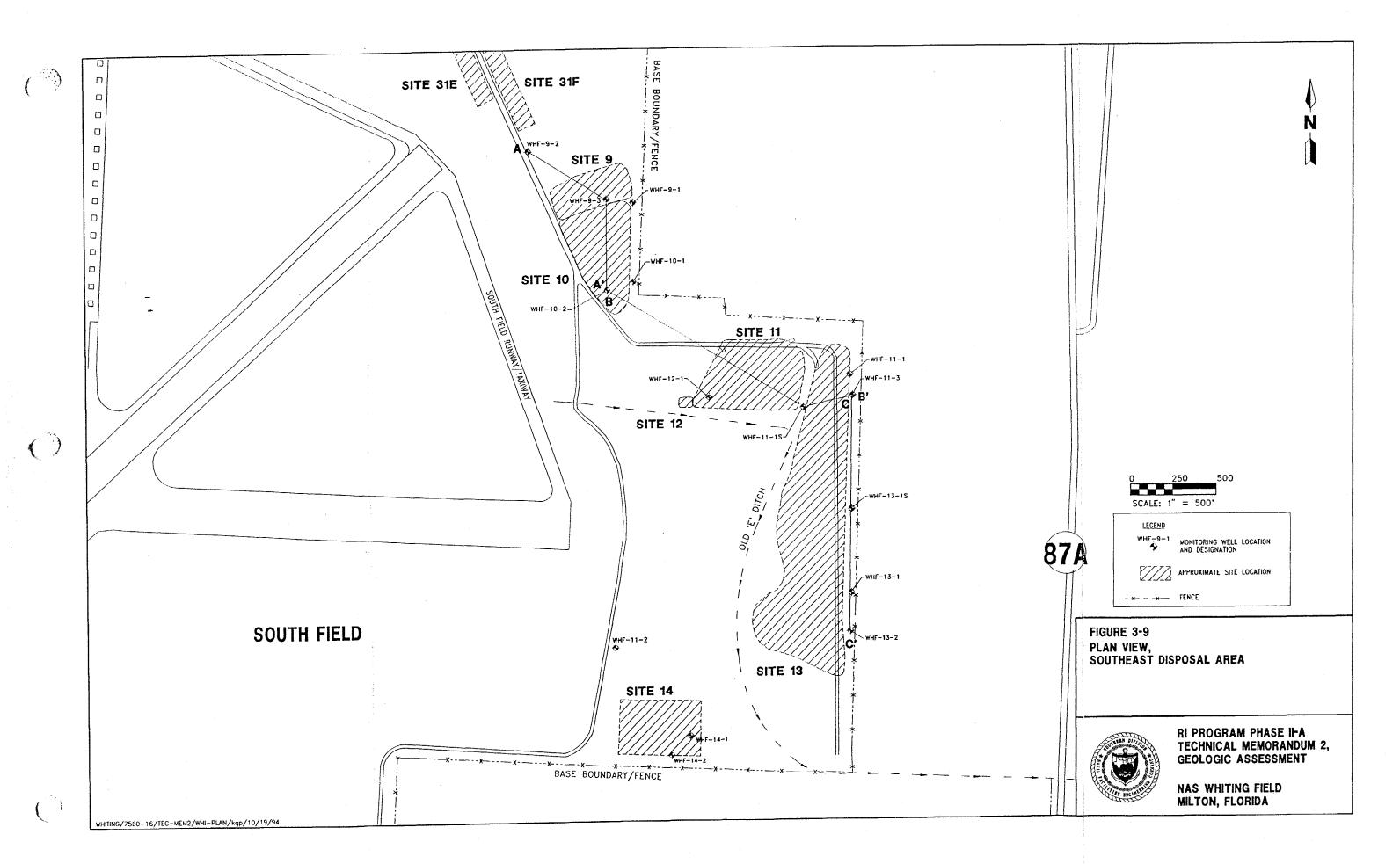






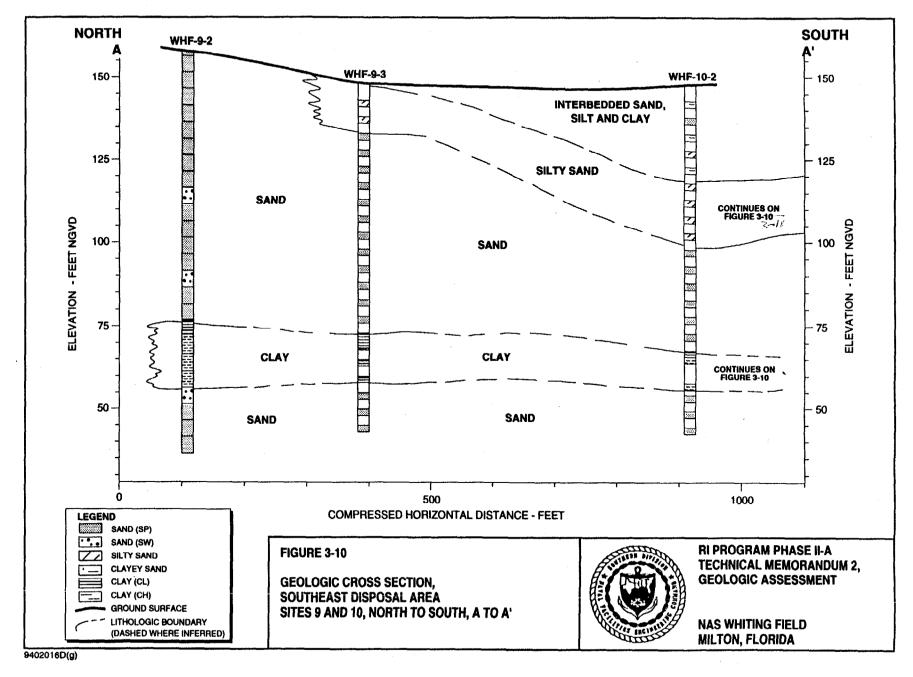






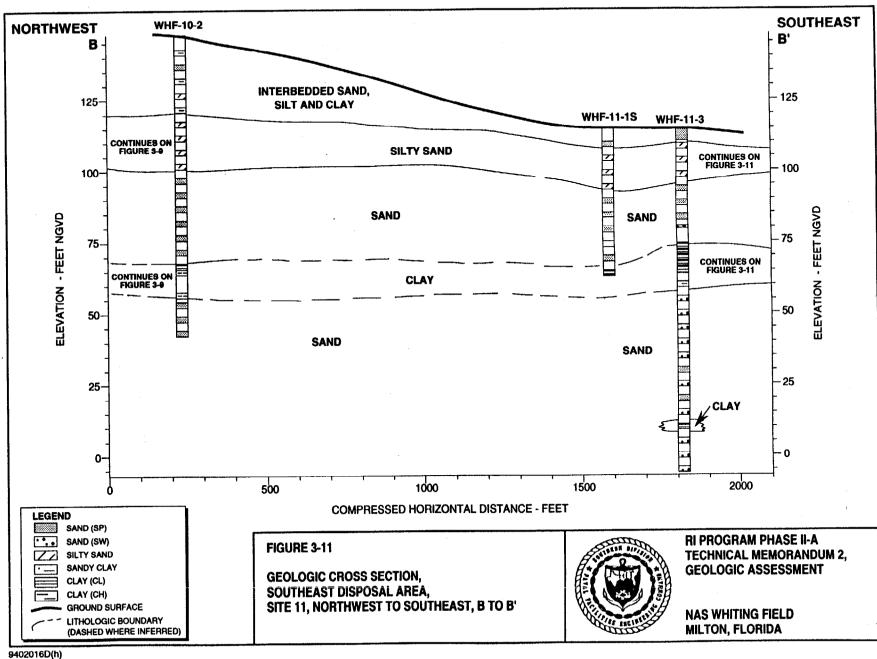


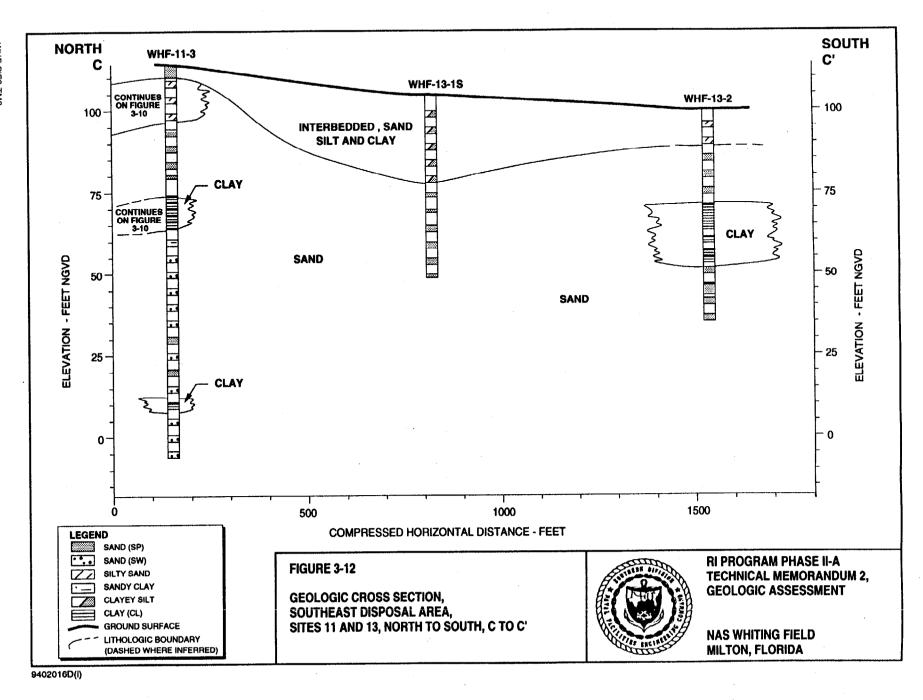












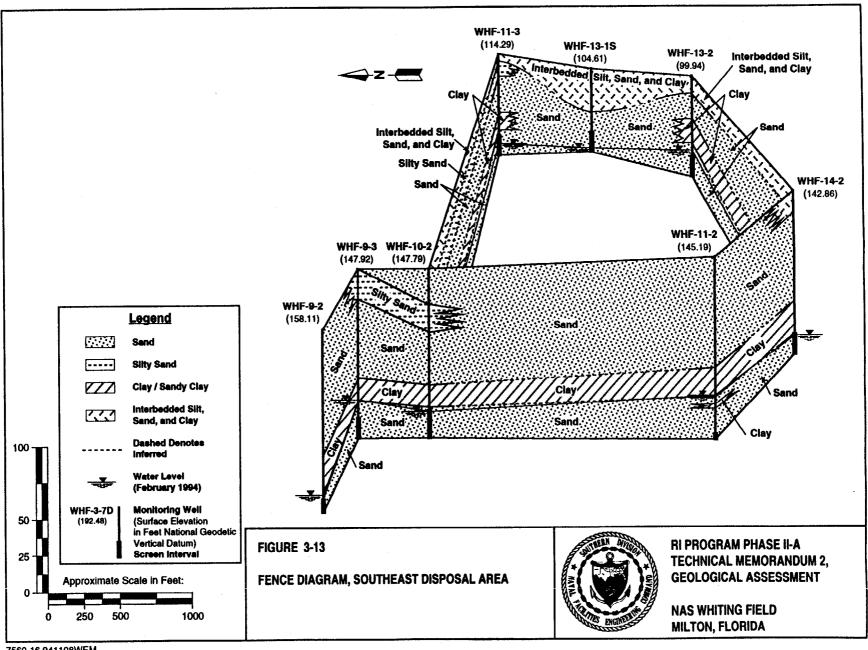
A clay layer of significant thickness (greater than 4 feet) and areal extent may be present in the Southeast Disposal Area as depicted in Figure 3-13. The layer is 15 to 25 feet thick and is located between 75 and 50 feet above NGVD. Clay layers were encountered in all the wells in the area that were set below the depth of 60 feet bls. Monitoring well WHF-11-1S was installed above a clay layer (Figure 3-10), whereas clay appears to be absent in monitoring well WHF-13-1S (Figure 3-11), indicating that the layer is discontinuous at Site 13. The clay layer is also present at Site 14 (monitoring well WHF-14-2) where it appears to attain its maximum reported thickness of 25 feet. The well is located in the southeast corner of the site. The layer was also detected at the same depth in the Phase I monitoring well (WHF-11-2) located to the northwest. Considering the thickness of the clay in the area and the relatively small size of Site 14, the layer may underlie the entire site. The wells at Sites 13 and 14 are separated by over 1,100 feet; therefore, the layer is inferred between the sites. layer is inferred over 500 feet between monitoring wells at Sites 9 and 10 and 1,300 feet between monitoring wells at Sites 10 and 11. Given the large distances between the monitoring wells, the layer may be discontinuous in these areas as well.

3.1.4 The Industrial Area The Industrial Area is the largest and most studied region of the installation (Figure 3-14). The area encompasses Sites 3, 32, 5, 6, 33, 30, and 29. Data from 39 soil borings completed at Sites 3, 32, 6, 33, 30, and 29 (Table 2-1); lithologic descriptions from 37 monitoring wells (Tables 2-2); and 7 PCPT soundings completed during the Phase II-A RI were used to generate cross sections (Figures 3-15 through 3-20) and to characterize the subsurface geology of the area. Additionally, lithologic descriptions from 61 monitoring well borings completed under the UST program (Appendix E) were reviewed and used to augment the Phase IIA data and to complete the cross sections for the area. The UST monitoring wells were originally installed to investigate UST sites 1467 and 1466, respectively (Sites 4 and 7, respectively).

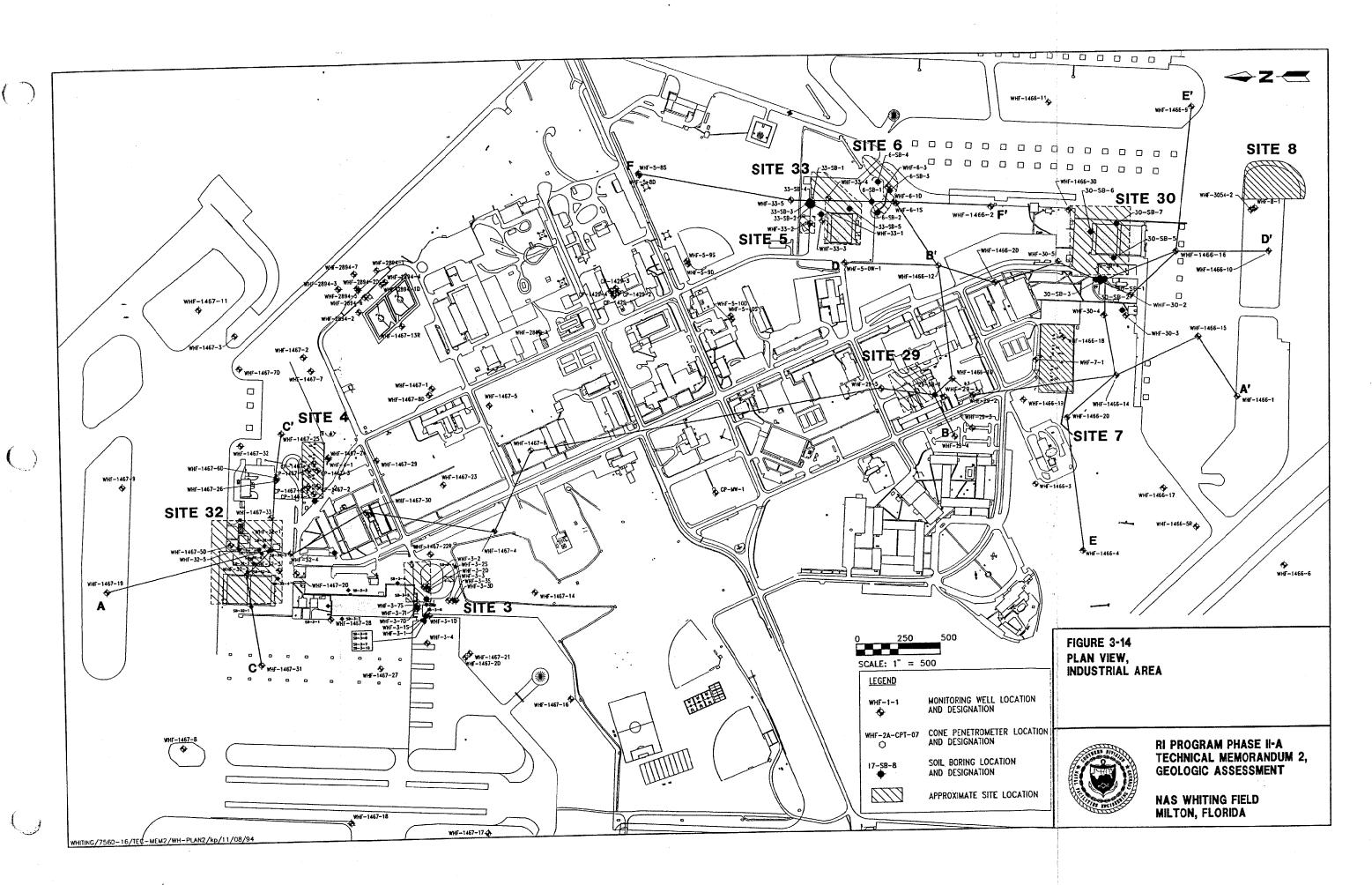
The most abundant soil type encountered in the area consists of light colored, poorly graded (fine- to medium-grained) sands containing frequent layers of clay and silty sand (Appendices B and C). The soil from shallow depths (0 to 30 feet) tended to be darker (various shades of reddish brown) in color and contain significant amounts of clay and silt. The shallow strata are referred to as interbedded sand, silt, and clay on the cross sections. Well graded sand layers containing coarse-grained sands are common throughout the Industrial Area (Figures 3-16 and 3-20).

A continuous clay layer does not underlie the entire Industrial Area (Figures 3-19 and 3-20). However, clay layers of significant thicknesses (greater than 4 feet) were encountered at Sites 3, 5, 6, and 30. Although a clay layer may be significant at individual sites, none of the layers were determined to be continuous throughout the entire Industrial Area (Figures 3-15 through 3-19).

At Site 3, a single clay layer ranging in thickness from 12 to 15 feet (located between 55 to 75 feet above NGVD) was identified. The clay layer is depicted in two cross sections located in Section 3.2 (Installation-Wide Findings) and a fence diagram (Figure 3-21). The clay layer was identified in lithologic descriptions for monitoring wells WHF-3-7D and WHF-3-3D in the north to south direction and in descriptions for WHF-3-4 and WHF-3-1D in the east to west direction.

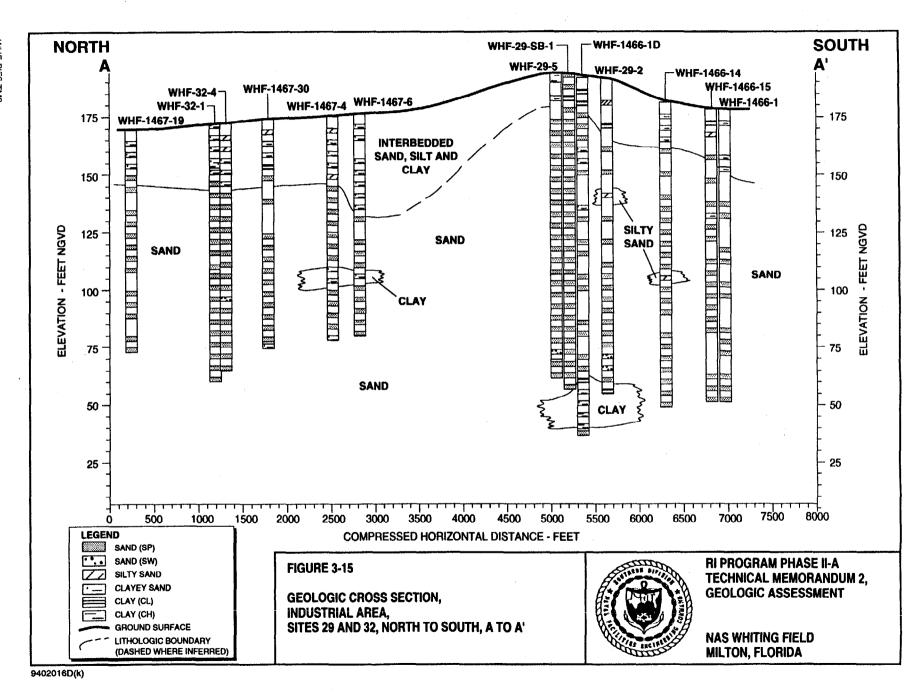


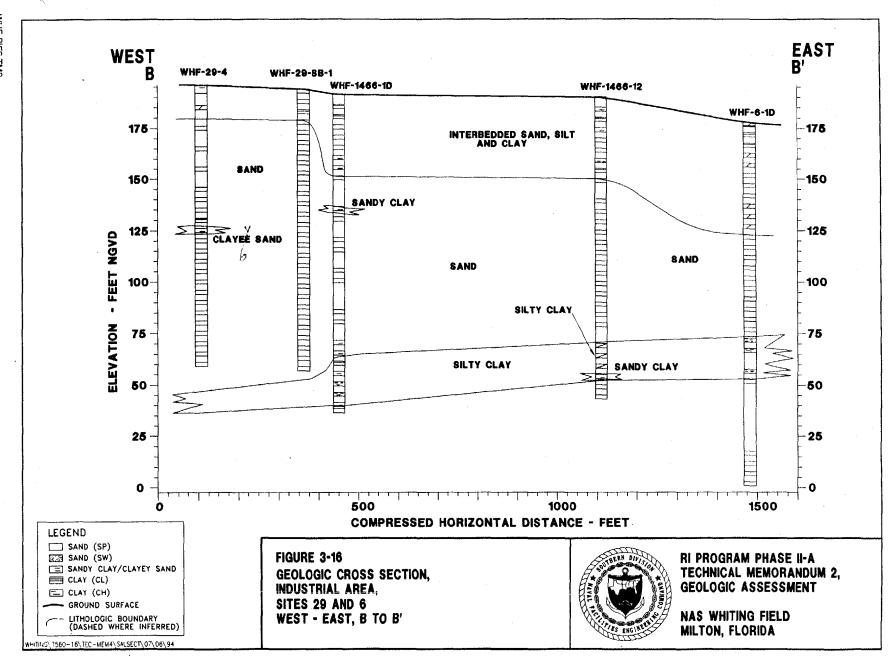
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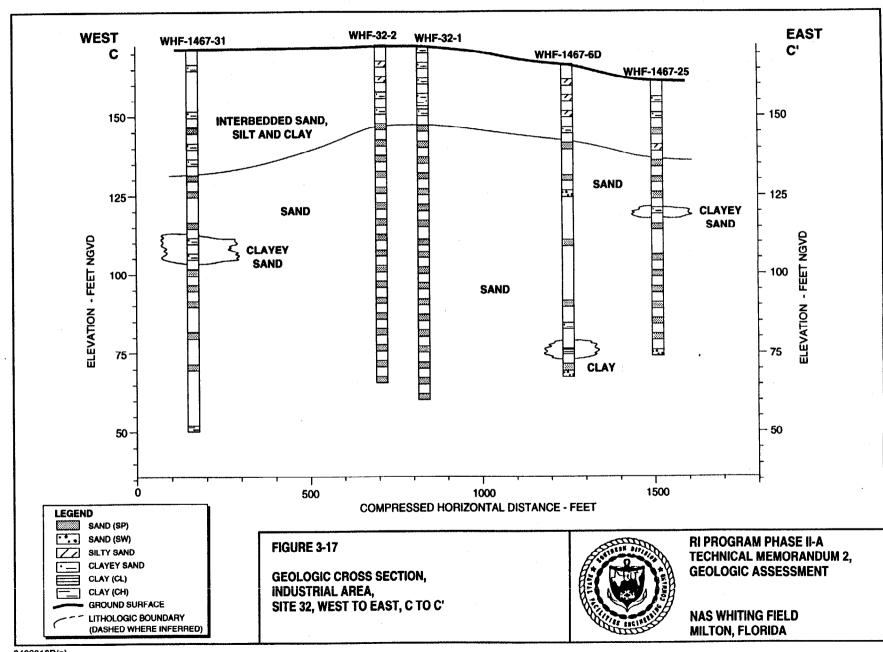








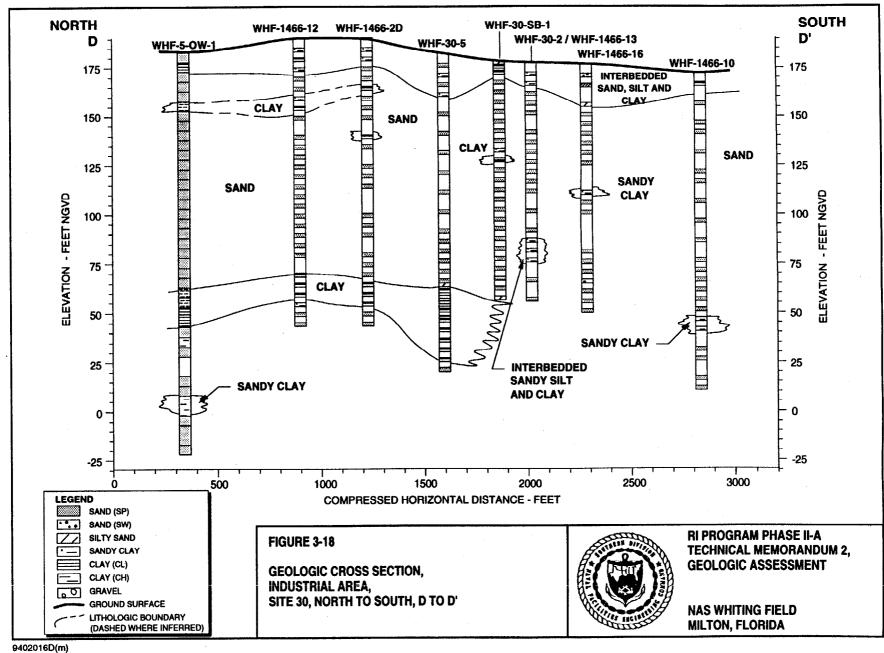




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WEST

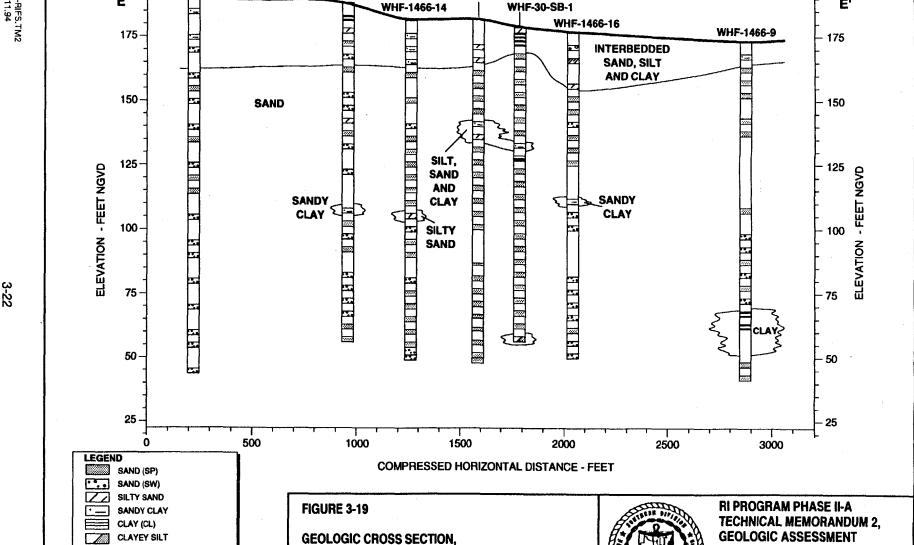
E

WHF-1466-4

WHF-1466-20

INDUSTRIAL AREA,

SITE 30, WEST TO EAST, E TO E'



WHF-30-4

EAST

E'

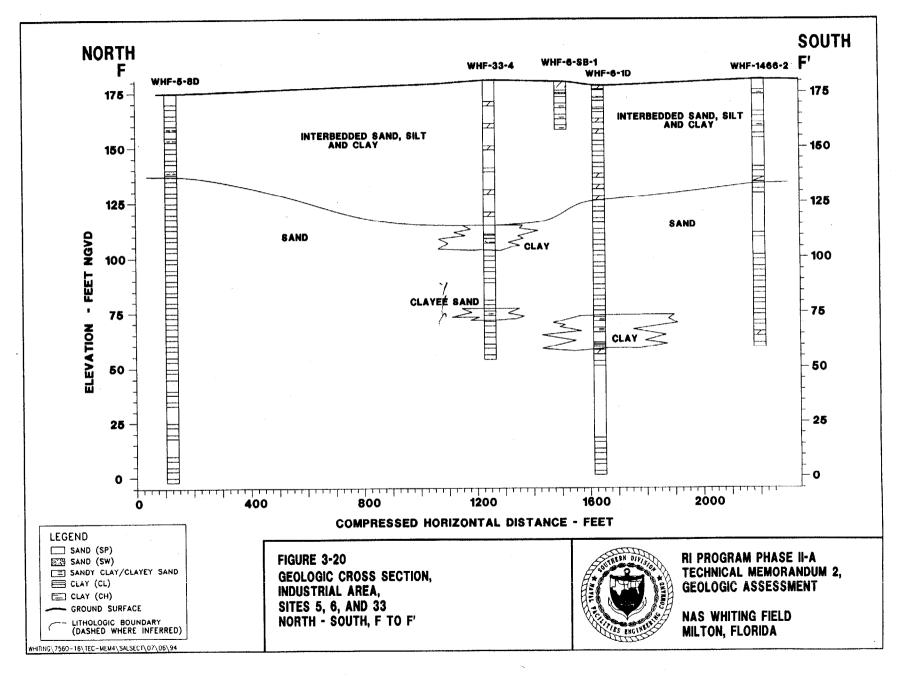
NAS WHITING FIELD MILTON, FLORIDA

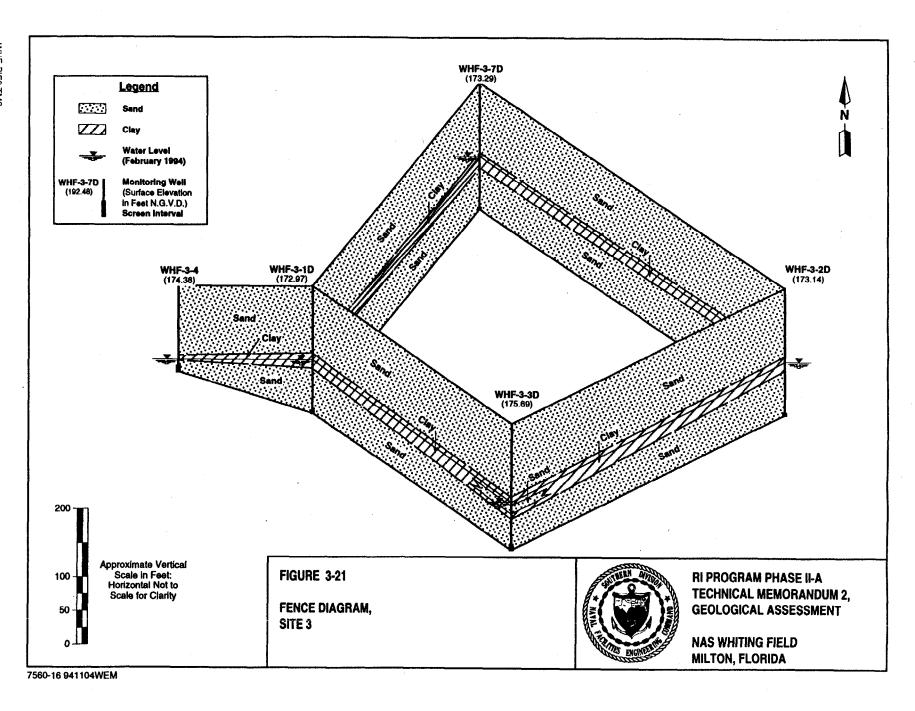
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GRAVEL

GROUND SURFACE

LITHOLOGIC BOUNDARY (DASHED WHERE INFERRED)





The lithologic descriptions for monitoring well WHF-3-2D indicate that clayey sand is present within the same depth range as the clay layer in the other wells. This may indicate that the layer is discontinuous to the east of the site. The clay at Site 3 is believed to be part of a larger layer consisting of interbedded sand, silt, and clay that appears to extend farther east from the site.

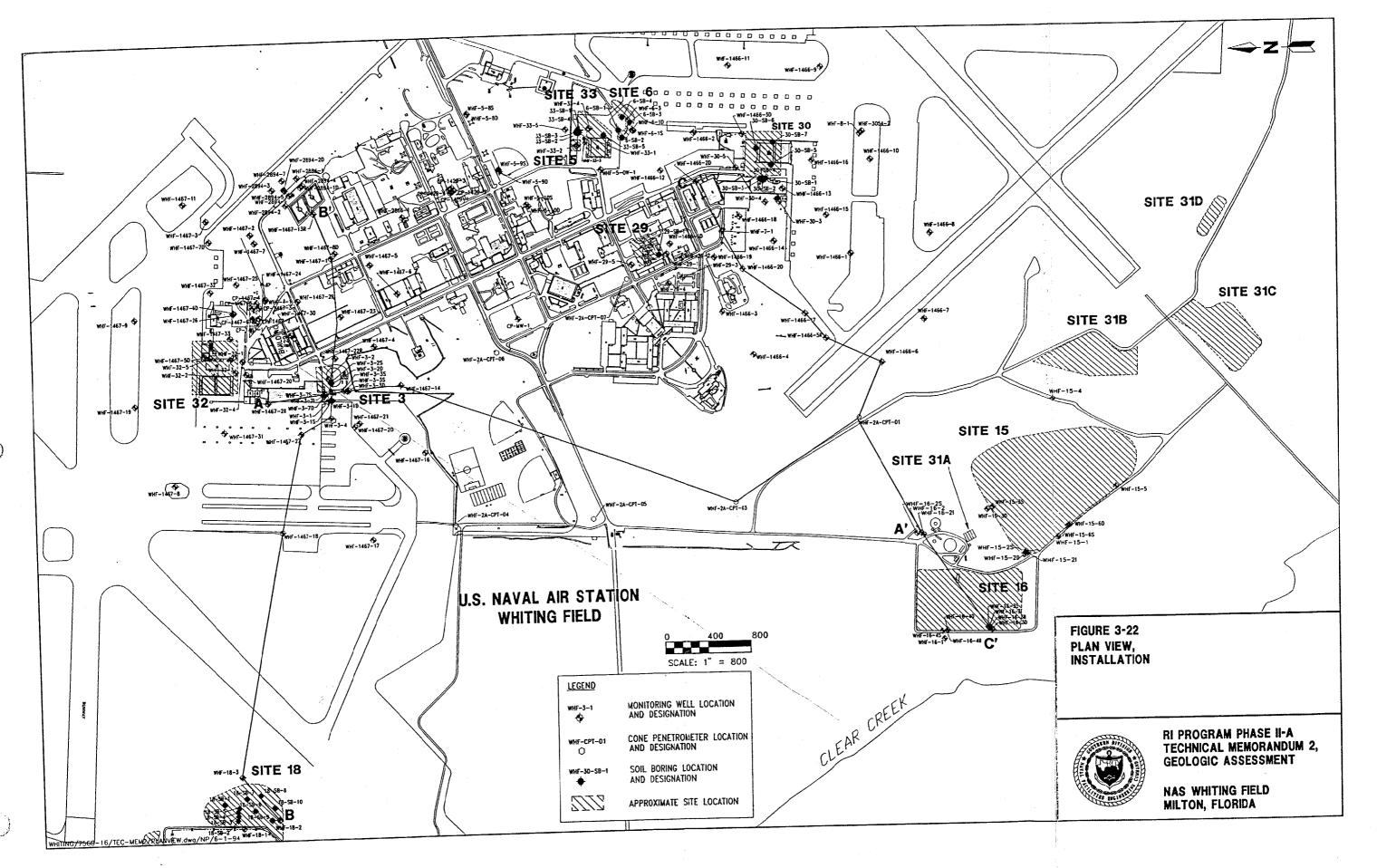
Based on data from UST wells located west of Sites 3 and 32 (Figure 3-14), the layer is believed to be absent in this area.

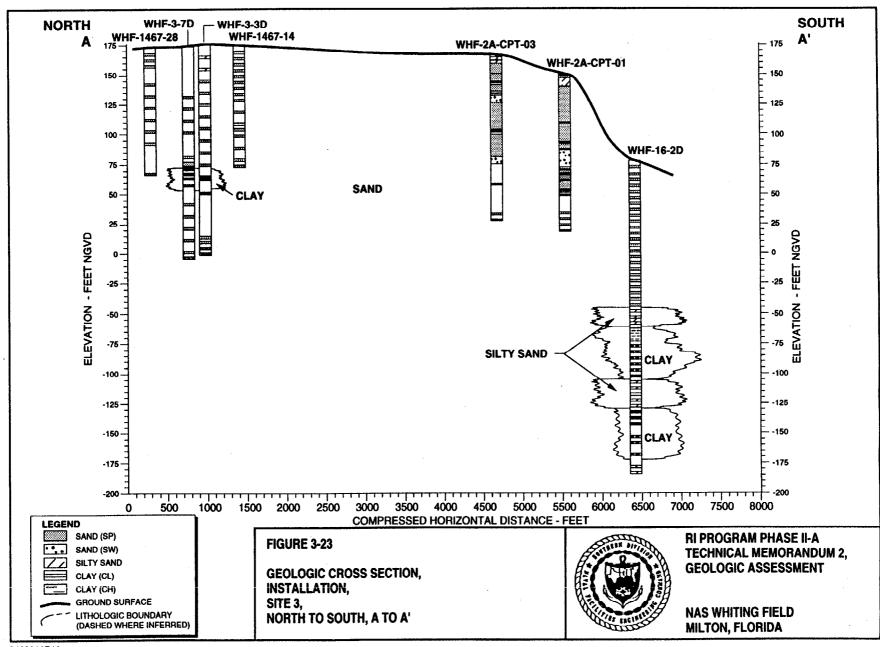
The subsurface lithology in the vicinity of Sites 7 and 30 is depicted in Figures 3-15, 3-18, and 3-19. All reported clay layers in the immediate vicinity appear to be discontinuous. However, because of the lack of soil borings and monitoring wells in a direction southwest of Site 30, lithologic data are limited and the continuity of the layer can not be confirmed. South of Sites 7 and 30, it is uncertain whether the clay is present or absent below terminal depths of the wells (Figure 3-14, Appendix E).

In the vicinity of Site 29, clay was detected in UST well WHF-1466D and Phase IIA monitoring well WHF-29-2. It is uncertain whether the layer is present or absent below the other Phase IIA wells at Site 29 (Figure 3-16).

The clay layer present in the vicinity of Sites 5, 6, and 33 (Midfield Maintenance Hangar Area) appears to contain discontinuities similar to those at Sites 3 and 30. A thick layer of clay, between 55 and 70 feet above NGVD, underlies Site 6. However, the same depth range in Site 33 monitoring wells contains sand, silt, and clay mixtures. The upgradient well for Site 5 (WHF-5-8D) contains sandy clay at the same depth range (Figure 3-20). The remaining upgradient wells (WHF-5-9D and WHF-5-10D) contain approximately 15 feet of clay located between 69 and 52 feet above NGVD. The layer was also identified in WHF-5-0W-1, between 45 and 65 feet above NGVD. Although the upgradient wells are over 700 feet north and west of Site 5, clay in the three Site 5 wells and at Site 6 indicates that the layer may underlie the Midfield Maintenance Hangar Building and the western part of Site 5. However, the lithologic descriptions of the Site 33 wells indicate that the clay is thin and/or discontinuous in the areas north and east of the hangar. The clay at Site 6 may extend westward towards Site 29; however, it grades into silty clay between the site and monitoring well WHF-1466-12 (Figure 3-16). There are no borings east of the area; therefore, the presence of clay in that area is uncertain. Although the component of clay was identified at similar depths in lithologic descriptions of many wells in the Midfield Maintenance Hangar Area, the wide variation of layer thickness and percent clay indicates that the layer may be discontinuous.

- 3.2 INSTALLATION-WIDE FINDINGS. The type and stratification of the soil encountered at the installation are consistent with the descriptions of the Citronelle Formation (Section 1.5). The presence of numerous clay layers and rapid facies changes also suggest a very low to moderately energetic depositional environment as described in Section 1.5. A plan view map for the installation is provided in Figure 3-22. Figures 3-23 and 3-24 present geologic cross sections for the facility as a whole.
- <u>3.2.1 Installation Lithology</u> The subsurface soil at the NAS Whiting Field consists of sand, silt, clay, and a variety of mixtures of the three soil matrices (as defined by the Unified Soil Classification System [USCS]). A

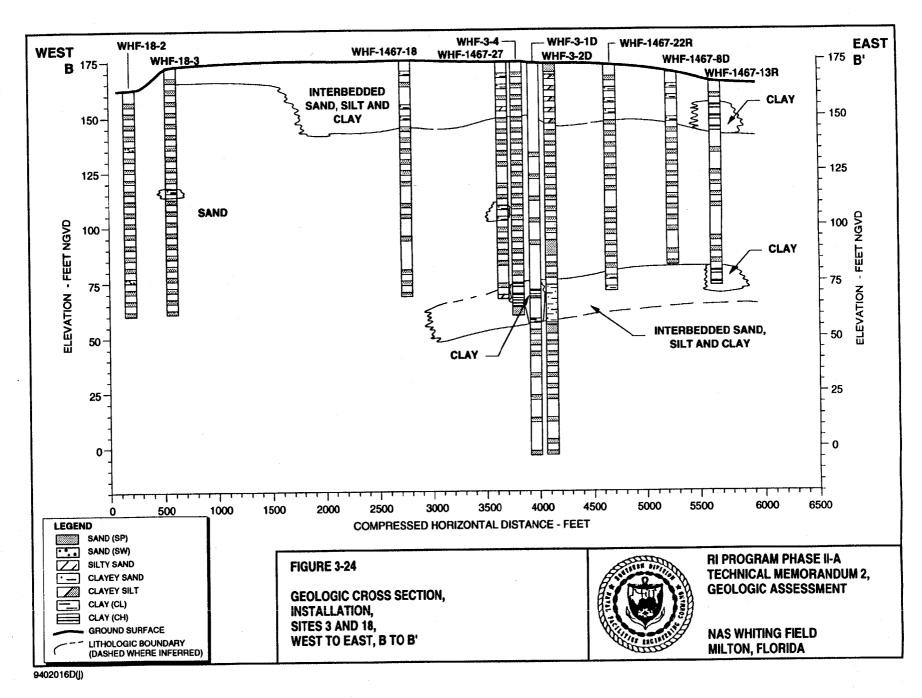




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generalized stratigraphic column for the deposits from the installation would include 0 to 30 feet of interbedded sand, silt, and clay overlying massive sand units containing clay and silt lenses. The two strata are best differentiated by the distribution and percentage of silt and clay present in the soil matrix. The percentage of silt and clay in the interbedded sand, silt, and clay layer is generally an order of magnitude greater than the sand layer it overlays (determined by visual inspection of split-spoon samples). Field estimates of the silt and clay content of this strata typically ranged from 35 to 50 percent. The silt and clay portion of the soil matrix was more evenly distributed throughout the shallower strata. Subsequently, the shallow soil layers were most commonly classified as silty or clayey sand (Appendices B and C).

The soil underlying the shallow strata consisted of low chroma (white and other light colors) fine- to medium-grained sand. The sand was commonly described as poorly graded containing a much lower percentage of silt and clay. The silt and clay present in the soil was dispersed along thin lenses of silty sand, clayey sand, clay, or other grain size mixtures (Figures 3-2, 3-3, and 3-6).

Gravel layers are present in the subsurface; however, their occurrence is much less frequent and very localized. As suggested in Section 1.5, the locations of these gravel lenses most likely coincide with the highest energy paleodepositional environments such as a swift stream or river channel. Sand deposits are indicative of slower moving streams and rivers, whereas the silts and clays suggest the low energy environments of shallow pools, ponds, and floodplains.

A great variety of colors were reported in the soil descriptions from borings at the installation. The deposits exhibited various shades of red brown, tan, grey, white, yellow, orange, and yellow brown. Purple, yellow, and orange (high chroma) were often observed in thin lenses and mottles. In sandy soils, mottling of this type is often indicative of the zone most affected by groundwater fluctuations (Seereeram, 1993).

There was an observable color change between the shallow and deep strata. The interbedded sand, silt, and clay layer was considerably darker (red brown, dark yellow brown, etc.). The deeper sand layer was typically white or very light shades of the high chroma colors.

3.2.2 Installation-Wide Confining Layers A variety of clay layers was detected throughout the installation. However, no single clay layer within the Pleistocene deposits is believed to underlay the entire installation. Significant clay layers were detected at 11 of the Phase IIA RI sites (Sites 3, 5, 6, 9, 10, 11, 13, 14, 15, 16, and 17). Clay layers were considered to be significant based on their thickness and/or areal size. A laterally extensive clay layer is one that could be confidently mapped throughout an individual site or between multiple sites (Sites 9, 10, and 11; Figures 3-10, 3-11, and 3-12). A clay layer greater than 3 feet thick was also considered to be significant. The areal extent of clay layers less than 3 feet thick was typically limited. In most cases, the layer could not be traced between borings at the same site (see cross sections and descriptions throughout Chapter 3.0).

Several sites contained thick layers (greater than 3 feet) of limited areal size (Sites 3, 5, 6, 13, 15, 16, and 17). The layers were detected in one or more borings at a site, but not in every boring at the site. In some cases, the layer would pinch out entirely (Figures 3-8 and 3-12, Sites 15 and 13, respectively);

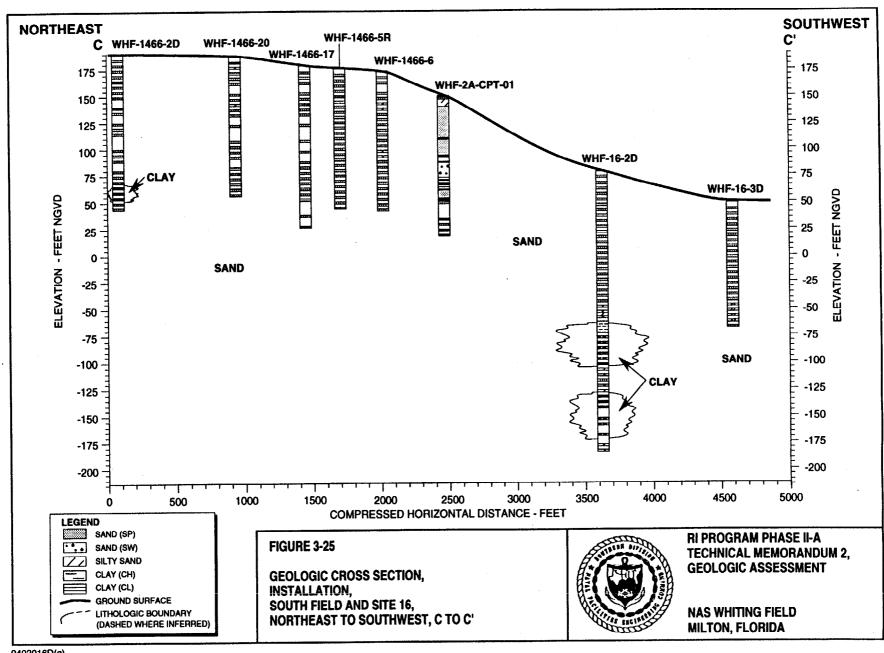
or grade into a silty or sandy clay (Figure 3-24; Site 3 between borings WHF-3-1D and WHF-3-2D). Discontinuous clay layers can be locally important features depending on the areal size. For example, the reported clay layers at Sites 3, 13, and 17 were not detected in every boring completed at the sites; however, the clay layers do underlie large parts of the sites. Conversely, the clay layers at Site 15, although greater than 3 feet thick, are not located at consistent depths and can not be confidently traced between borings. Therefore, they are not believed to be as significant a subsurface feature. Additionally, the clay layer at Sites 5 and 6 may not be as significant a feature due to the size of the suspected discontinuity at Sites 6 and 32. The deeper clay layers recorded in monitoring well log WHF-16-2D are below the terminal depths of all other borings at the installation. Therefore, the areal extent of each of these layers can not be determined.

Although a single continuous clay layer is not believed to be present at the installation, extensive clay layers were reported. Clay (between 10 and 40 feet thick) was commonly encountered in borings located in the Southeast and Southwest Disposal Areas, as well as in many deep borings located in the Industrial Area (Figures 3-15, 3-16, and 3-18).

The clay layer in the Southeast Disposal Area is suspected of underlying large parts of Sites 9, 10, 11, and 13 (Figures 3-10, 3-11, and 3-12). The clay in the Industrial Area is extensive, yet discontinuous, and may be dipping below the terminal depths of many of the shallow well borings (Figures 3-15, 3-16, and 3-18). In both the Industrial and Southeast Disposal Areas the top of clay was reported at elevations ranging from 50 to 75 feet above NGVD.

Significant clay layers were also recorded in the Southwest Disposal Area. Although there is a greater than a 100-foot elevation difference between the top of clay layers within the Industrial Area and the Southwest Disposal Areas, this separation is consistent with topographic relief and regional lithologic descriptions (regional literature indicates southwestward dip of sediments). Therefore, the possibility exists that these clay layers are interconnected. The PCPT soundings used to investigate the lithology between the Industrial and Southwest Disposal Areas were not deep enough to confirm the continuity of the clay layer (Figure 3-25). Therefore, the clay layer can only be inferred between these two areas. Additionally, because the layer was not investigated between the Industrial and the Southeast Disposal Areas, its continuity is speculative there as well.

The greatest boring depth attained during the geologic investigation was 175 feet below NGVD in monitoring well WHF-16-2D. Two separate clay layers were reported in the lithologic descriptions of monitoring well WHF-16-2D. The upper clay layer was encountered at 65 feet below NGVD. Monitoring wells WHF-16-3D and WHF-16-4D were the only additional installation borings completed deep enough to encounter this layer. The clay layer was not detected in monitoring well WHF-16-3D and was only reported in the last lithologic sample for WHF-16-4D. None of the installation borings were completed deep enough to encounter the deeper clay layer (located between 125 and 170 feet below NGVD). Therefore, it is impossible to speculate on its areal extent.



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4.0 ASSESSMENT SUMMARY

The assessment summary is as follows.

 The lithologic features of the vadose and saturated zones underlying individual sites (and the major areas delineated in this report) have been thoroughly characterized. The subsurface soil data provided an adequate understanding of installation-wide lithology.

The lithology and stratification of the material encountered at the installation are consistent with the descriptions of the Citronelle Formation. Site-specific lithologic descriptions indicated interbedded sand, silt, and silty sand units with occasional discontinuous clay layers. The presence of numerous clay layers and rapid facies changes suggests a very low to moderately energetic depositional environment.

- The geologic assessment produced sufficient data to characterize existing clay layers that underlie individual sites (Sites 3, 5, 6, 9, 10, 11, 13, 15, 16, 17, and 30). Additionally, the assessment produced an adequate representation of existing clay layers underlying the four areas of the installation.
- The clay underlying the Southeast Disposal Area is relatively continuous; however, discontinuities exist and a large portion is inferred (Figures 3-8 through 3-12).
- Clay layers were detected at many sites throughout the Industrial Area (Sites 3, 5, 6, 29, and 30). An extensive clay layer may exist in the Industrial Area; however, many significant discontinuities have been confirmed or are suspected.
- A clay layer, of very limited areal extent, was detected at the Northwest Disposal and Crash Crew Training Areas (Figures 3-2 and 3-3). The layer is too shallow to be correlated with the layer at the Industrial Area (Figure 3-20), and the terminal depths of the assessment in this area is insufficient to confirm the existence of a deeper clay layer.
- Significant clay layers were detected at various depths in the Southwest Disposal Area. The thin layers encountered between 75 feet above and 50 feet below NGVD were not continuous throughout the area. The layer encountered at 65 feet below NGVD (Figure 3-23, WHF-16-2D) was deeper than the terminal depths of most other borings in the area (clay was detected in the tip of the last split-spoon sample of WHF-16-4D at 70 feet below NGVD). The layer located at 125 feet below NGVD was far below the terminal depths of all other borings at the installation.
- The PCPT soundings provided additional lithologic data, but failed to obtain the depth necessary to confirm the presence or continuation of a clay layer between the Industrial Area and the Southwest Disposal Area.
- A facility-wide continuous clay layer does not exist between ground surface and 50 feet above NGVD.

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APPENDIX A RI PHASE I MONITORING WELL LITHOLOGIC DESCRIPTIONS

TITLE: NAS WHITING FIELD RI						of WELL: WHF-5-0W-1			BORING NO.		
CLIENT: SDIV NAVY								PRO-	JECT NO: 6500-01		
CONTRACT	TOR: WILLI	AMS & A	SSOC.			DATE STARTED:	1-8-91		COMPLTD: 3-4-9)1	
METHOD: MUD-ROTARY CASE SIZE: 4-INCH						SCREEN INT.: 10-INCH			ECTION LEVEL: D		
TOC ELEY	∴ 185.80 F	т.		MONITOR INST.: OVA		TOT DPTH: 201.5FT.			1 TO ♀ 121.36 FT.		
LOGGED B	Y: A. DES	ANDRO		WELL DEVELOPMENT	WELL DEVELOPMENT DATE: 3-6-91			SITE: WHITING FIELD			
H LABO	RATORY W	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5—	2	1.2/1.5	0	SAND-dk brown very fine CLAY-white/red brown cla		e sand, mottled, .		SP CL	8-15-20		
10-	3	1.0/1.5	1	moderate plasticity SAND-red brown fine to r	nedium sai	nd		SP	17-20-25		
15—	4	0.5/1.5	1	SAND-white/It pink very	fine sand			SP	9-17-26		
20	5	1.0/1.5	0	Same as above			SP	16-22-22			
25—	6	1,0/1.5	0	CLAY-gray/red brown, mo	od plasticity		СН	6-15-29			
30	7	1.0/1.5	0	SAND-white very fine sar			SP	19-37-40			
15	8	1.0/1.5	0	Same as above			- SP	19-25-32			
10	9	0.3/1.5	0	SAND-white fine sand			SP	20-25-31			
15—	10	0.8/1.5	1	SAND-white/It pink fine t	sand		SP	25-40-50/5			
50	11	1.0/1.5	0	SAND-It gray/white fine	ne sand		SP	12-20-28			
55	12	1.0/1.5	2.4	Same as above				SP	16-20-21		
io	13	1.0/1.5	0	SAND-white/It brown coa	arse sand	to gravel		SP	8-19-22		
)5— <u> </u>	14	0.8/1.5	0	SAND-It brown medium to	coarse s	and		SP	19-28-30		
70	15	1.2/1.5	0	SAND-It red/gray fine sa	end	*		SP	15-20-24		
75 <u>-</u>	16	1.0/1.5	0	SAND-It red/red fine to gravel	sand w/ trace		SP	17-25-32			
30-7	17	0.5/1.5		SAND-It gray very fine s	and			SP	19-27-35		
35—]	18	1.0/1.5	1	SAND-It gray/red very f	ine sand			SP	23-33-48		
90-	19	0.3/1.5		SAND-tan medium to fine	sand			SP	38-50/5		
95	20	071.] _	Same as above				SP	32-50/6 36-50/5.5		
00	21	0.2/1.5] _	SAND-tan coarse to med				SP	29-31-50/5		
110	22	1.0/1.5	0	SAND-tan/pink coarse s	and w/ lit	tie gravei		SP	42-50/5		
110	23	•	U		1 64 1.01 1	-5-0W1 ABB	ENIVEDO	SP	7 NTAL SERVICES.	TNIC	

TITLE: NAS WHITING FIELD RI					LOG of WELL: WHF-5-0W-1			BORING NO.		
IENT: SD	IV NAVY		•	·		PROJ	ECT NO: 6500-01			
NTRACTO	R: WILLIAMS & A	ssoc.			DATE STARTED: 1-8-91			COMPLTD: 3-4-	91	
ETHOD: MU	D-ROTARY		CASE SIZE: 4-INCH		SCREEN INT.: 10-INCH		PROTECTION LEVEL: D			
DC ELEV.:	185.80 FT.		MONITOR INST.: OVA	MONITOR INST.: OVA TOT DPTH: 201.5FT.		Τ	DPTH TO ¥ 121.36 FT.			
OGGED BY:	A. DESANDRO		WELL DEVELOPMENT DATE: 3-6-91			SITE: WHITING FIELD				
L LABORA	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
3	0.1/1.5		SAND-tan medium to fine			12.17.17	SP			
5	24 0.0/1.5	0 1	NO RECOVERY-blow count	indicate	sand		SP	50/5		
	25 1.5/1.5		CLAY-gray/red clay, mott		plasticity		СН	10-11-12		
5		10	CLAY-SHELBY TUBE SAM	PLE		====	СН			
) <u> </u>	26	0 0	CLAY-gray/brown clay, m	od plasticity		CL	9-22-50/5			
; <u> </u>	27 0.3/1.5	0 0	CLAY-gray/brown clay, m	plasticity			29-32-50/5			
	28 0.5/1.5	0	SAND-pink/tan very fine :	sand			SP	23-35-31		
5	29 1.0/1.5		SAND and CLAY-pink very hin clay lense (4")	fine sand	d w/ some clay,		sc	20-23-31		
	30 0.8/1.5		SAND-gray/pink very fine (2")	to fine s	and, clay lense		SP	29-40-50		
5—	31 0.0/1.5	NA I	NO RECOVERY-blow count	ts indicate	sand			48-50/3		
	32 0.0/1.5	NA 1	10 RECOVERY-blow count	ts indicate	e sand			50/5.5		
; <u> </u>	33	NA N	NO RECOVERY-blow count	ts indicate	sand		SP	NA		
	34 1.2/1.5		SAND-tan/white coarse s pebbles	and to gra	avel w/ some		SP	38-19-26	1	
5—]							SC		لسلنا	
	35 1.2/1.5	0	SAND-red/tan fine to med	dium sand	w/ some clay			35-50/5		
5]	36 0.0/1.5	NA ,	NO RECOVERY-blow count	ts indicat	sand		SP	50/5		
)							SP			
5	37 0.8/1.5	0 (SAND-tan coarse sand ar	nd gravel	w/ trace clay			28-34-38		
	38 0.8/1.5		SAND-red/tan coarse sar SAND-buff fine to coarse				SP	34-50/3.5		
5—]			CLAY-buff/brown/tan cla sand and gravel	y w/ some	fine to coarse					
			SAND-buff fine to coarse	sand w/	some gravel					
5—			CLAY-yellow/buff/brown (sand	clay w/ so	ome fine to coarse					

TITLE: NAS WHITING FIELD RI			LOG of WELL: WHF-9-2				BORING NO.		
LIENT: SDIV	YVAV						PROJE	CT NO: 6500-01	
ONTRACTOR:	WILLIAMS & ASS			DATE STARTED: 11-26-90			COMPLTD: 12-13-	90	
METHOD: MUD-	ROTARY		CASE SIZE: 4-INCH		SCREEN INT.: 10-INCH		PROTE	CTION LEVEL: 0	
TOC ELEV.: 161.	19 FT.		MONITOR INST.: OVA		TOT DPTH: 120FT.		DPTH	TO \$ 96.19 FT.	
OGGED BY: E	. BLOMBERG		WELL DEVELOPMENT	WELL DEVELOPMENT DATE: 1-9-91			SITE: WHITING FIELD		
E LABORATO	SAMPLE	HEAUSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	2 1.0/1.5	0.5	ANU-brown/orange brow ose				SP SP	4-4-6	
10-11	2	.	AND-red orange fine sa				SP	3-5-7	
]	4	. 3	AND-red orange fine sa				SP	7-9-13	H
15	4 1.0/1.5	d	AND-dark red fine sand ense	w/ little s	siit, trace clay,		SP	7-10-12	
20-1	5 1.171.5		ame as above				SP		
25—	6 1.0/1.5	0 s	ame as above			13.03.03 17.03.03 17.03.03	SP	12-16-18	
30	7 0.9/1.5	0 s	AND-yellow to white				SP	6-9-10	
35—	8 1.0/1.5		AND-yellow/white/purpl	e/pink fin	e sand w/ trace		SP	7-10-10	
40—	9 1.2/1.5	a l	it, mottled AND-maroon/purple/whi	ita/vallau	cand w/ trace	78.78.78 23.28.28		8-11-12	
45—	10		ilt, stratified, mottled	ite/ yellow	Sand, W/ trace	• • •	SW	12-17-19	
50—		os	AND-pink fine to coarse	e sand, we	ell graded, loose		SP	13-13-13	
3	40.071.3		AND-white very coarse				SP	25-27-37	
55—]	12 0.6/1.5	٦	AND-pink/white fine sa	na, aense			SP	22-42-48	
60-	13 0.7/1.5	0 s	AND-pink/tan fine to m	edium san	d, dense		SP		
65	14 0.4/1.5	0 5	Same as above			• • •	SW	36-50-50/4	
70	15 0.5/1.5	0 9	SAND-pink/yellow fine c	oarse san	d, well graded	• • •	SP	24-35-40	
75—	16 0.3/1.5	0 9	SAND-pink/tan medium s	and w/ so	me fine sand,			36-50/5	
80—3	17	0 1	iense				SP	22-32-15	
85—	18 1.5/1.5	0	SAND-orange/pink fine :				CL CL	5-10-15	
			CLAY-gray clay w/ some Dlasticity	s ont, i∪W	to moderate		CH /	7-13-15	H
90-1	19 1.5/1.5		CLAY-purple/gray clay,	mottled, g	good plasticity		СН		A
95—	20 1.5/1.5	0 (CLAY-gray/light brown o	clay, mottl	ed, good plasticity		СН	9-10-18	y
100	21 0.5/1.5	0 0	CLAY-purple/gray clay,	mottled, (good plasticity		SW	35-36-56	H
105-	22 0.5/1.5	0	SAND-It brown/It gray f	ine to med	dium sand	• • •	SP	36-5 5-	
110	23 0.5/1.5	0	SAND-it red/lt gray, ver	ry fine sai	nd		SP	16-31-56	
115	24 1.0/1.5		SAND-pink/It brown fine	to mediu	m sand w/ trace			29-35-40	
120—	25 1.0/1.5	4 1	gravel				SP	25-36-55	
125	1.0/1.5	1	SAND-It brown fine sand	đ					

TITLE: NAS WHITING FIELD RI	LOG of WELL:	NHF-11-2	BORING NO.		
CLIENT: SDIV NAVY			PROJECT NO: 6500-	-01	
CONTRACTOR: WILLIAMS & ASSOC.	DATE	STARTED: 11-27-90	COMPLTD: 12	2-1-90	
METHOD: MUD-ROTARY	CASE SIZE: 4-INCH SCREE	N INT.: 10-INCH	PROTECTION LEVEL: D		
TOC ELEV.: 148.17 FT.	MONITOR INST.: OVA TOT D	MONITOR INST.: OVA TOT DPTH: 130FT.			
LOGGED BY: E. BLOMBERG	WELL DEVELOPMENT DATE: 1-8-91		SITE: WHITING FIELD		
DEPTH FIT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS Brome\e-ii	Z WELL DATA	
clay	D-red orange/brown fine sand w/ little ID-dark red fine sand w/ some clay	silt, trace	SP SC 4-6-7		
	ID-dark red fine sand w/ little clay and	silt	3-5-5 SP		
- I - I - I - I - I - I - I - I - I - I	ID-dark red to red orange fine sand w/clay	little silt	9-13-17 SP		
 	ID-red brown/gray/yellow fine sand w/ clay, mottled	little silt	10-17-18		
] mot	Y-blue gray/dark purple clay w/ some tied	silt,	2-5-7		
35	ID-dark red to yellow fine sand w/ some		3-7-7 SP 9-8-5		
1.271.5 clay	ID-pink/yellow/gray fine sand w/ little : /, mottled ID-yellow/pink/maroon/gray fine sand i		SP 7-5-5		
45 10 0.7/1.5 0 SAN	clay ID-red/yellow/gray/pink fine sand w/ t		SP 10-12-15		
and	gravel	se	SP 18-30-40		
55 12 0.6/1.5 0 SAN sor	ND-light brown fine to coarse sand, den ted	ise, well	19-22-30 SP		
13 0.4/1.5 0 SAN	ND-brown coarse sand w/ little medium :	sand	12-18-20		
65 14 0			13-13-21	ИИ	

TILL: NAO	WHITING		11	u.g.·	LOG of	WELL: WHF-11-2 -		···	NG NO.	
LIENT: SDIV						I		PROJ	ECT NO: 6500-01	
CONTRACTOR	R: WILLIA	MS & AS	SSOC.			DATE STARTED: 11	-27-90		COMPLTD: 12-1-9	90
METHOD: MUC	D-ROTAR	Y		CASE SIZE: 4-INCH	ASE SIZE: 4-INCH SCREEN INT.: 10-INC		INCH	H PROTECTION LEVEL: D		
FOC ELEV: 1	48.17 FT.					TOT DPTH: 130FT.		DPTH	TO ♀ 89.86 FT.	
LOGGED BY:	E. BLOM	BERG		WELL DEVELOPMENT	DATE: 1-	8-91		SITE:	WHITING FIELD	
LABORA SAMPLE	=	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
70—	15	0.7/1.5	0	SAND-brown/purple/gray, clay, stratified SAND-brown/yellow fine s	/yellow fir	ne sand w/ little	• • •	SP SW	8-11-20	
75—	16	1.5/1.5	0	CLAY-purple/light gray cl mottled	lay, modei	rate plasticity,		CL-CH	8-9-13	
80-	17	1.5/1.5	0	CLAY-purple/It gray/yello moderate plasticity, mottl		′ trace silt,		CL-CH	7-9-13	
85—	18	0.2/1.5	0	CLAY-brown/gray clay				CL-CH	7-14-19	
90—	19	1.5/1.5	0	CLAY-brown/gray clay, m SAND-pink/gray fine to m				SP	6-8-125 20-40-42	
00-	21	1.0/1.5	0	CLAY-pink/gray/red clay				CL	20-40-42	
05—	22	1.0/1.5	0	SAND-pink/gray medium	sand			SP	26-30-30	
110	23	0.5/1.5	0	SAND-It brown/tan fine s	sand			SP	50/5	
115—	24	1.0/1.5	0	SAND-It gray/white medi				SP	40-50/50	
20-	25	1.0/1.5	0	SAND-It brown/tan coars				SP		
125		1.0/1.5		SAND-tan/brown fine to sand CLAY-yellow/buff/t coarse sand						

APPENDIX B RI PHASE IIA SOIL BORING LITHOLOGIC DESCRIPTIONS

TTLE: NAVAL AIR STATIO	N WHITING		LOG of	WELL: N/A		BORI	ING NO. WHF-02-SI	B-01	
LIENT: SOUTHNAVFACEN						PROJECT NO: RI PHASE IIA			
ONTRACTOR: Groundwater	Protection	n Inc.	Inc. DATE STARTED: 07/30/		07/30/93	COMPLTD: 07/30/93			
ETHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/A			PROTECTION LEVEL: D			
OC ELEV.: N/A FT.		MONITOR INST.: OVA	MONITOR INST.: OVA TOT DPTH: 70FT.			DPTH	TO ¥ 68 ft FT.	·	
OGGED BY: G. Walker		WELL DEVELOPMENT	DATE: N/	A		SITE:	02 - Landfill		
SAMPLE SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
- (0-2')	1 1	ILL: Black, Very fine to r gravel cinders and bric			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	FILL	10,12,14,16		
5— (5-7') 20/2	1 1'	(LL: Black and medium br ained sand, poorly grad			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	FILL	27,18,19,22		
0	4 5 S	ame as above.			V > V	FILL	18,19,22,27		
5 - (15-17") 14/2	4 1.5 S	ILL: Top 6" same as abo AND. AND: Fine to very fine gredium density, dry.				SP	3,7,9,14		
0	ŧ 1	ame as above, 4" lens o	f clay 6" f	rom the top.		SP	7,8,9,11		
5	4 0 S	ame as above for 2", 3" AND: Very pale orange t ery fine to fine graineed ensity, dry.	o medium r	eddish brown,		SP	5,7,9,9		
0 - 14/2	, ,	ame as above.				SP	14,20,23,28		
15—						SP /			

	TATION WHIT	ING FIELD	LOG of WELL: N/A		BORING NO. WHF	-02-SB-01
LIENT: SOUTHNAVE	ACENGCOM				PROJECT NO: RI	PHASE IIA
CONTRACTOR: Ground	dwater Protec	tion Inc.	DATE START	ED: 07/30/93	COMPLTE	: 07/30/93
METHOD: HSA		CASE SIZE: N/A	SCREEN INT	: N/A	PROTECTION LEV	EL: 0
TOC ELEV: N/A FT.		MONITOR INST.: 0V	A TOT DPTH: 7	OFT.	DPTH TO \$ 68 ft	FT.
.OGGED BY: G. Walk	er	WELL DEVELOPMENT	T DATE: N/A		SITE: 02 - Landf	ili
L LABORATORY Z	RECOVERY HEADSPACE (ppm)	SOIL/ROCK	K DESCRIPTION COMMENTS 1 from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS Bromeve	Z Z WELL DATA
	17/24 7	SAND: Very pale orange,	poorly sorted, dry.		SP 17,19,22	,26
40	14/24 20	Same as above.			SP 11,12,15	,18
45	19/24 0	Same as above.			SP 14,17,19	1,22
50-52")	20/24 0	Same as above.			SP 17,22,3	0,50
55—	19/24 0	Same as above.			SP 16,20,3	2,27
80	21/24 0	Same as above.			SP 17,20,2	3,27
65—	14/24 0	Same as above, bottom	4" wet.		SP 8,11,12	.,20
- (68-70°)	21/24 0	Same as above, ground	water level.		SP 8,8,9	9,11

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A		BOR	ING NO. WHF-03-SB-01	_
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/	CD: 01/20/93 CC		COMPLTD: 01/20/93	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A		PROTECTION LEVEL: D		
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.		DPTH TO \$ N/A FT.		
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/	A		SITE	: 03 - Waste Solvent Stor	rage
DEPTH F1. COLPANORPT SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	MELL DATA	***************************************
	AYEY SAND: Orange brown, some avel, well rounded.	organics and fine		SC	Hand Auger	
5— (5-7') Z24/24 O SA	A, increased clay.			SC	1,1,2,3	
10 - 20/24 0 SA	A, wet			sc	1,2,2,3	
15—- (15-17') 20/24 0 SA	NDY CLAY: Orange to white, medi	um plasticity.		CL	4,5,9,8	
	AY: Orange to white, some silt and sticity, moist.	d sand, medium		CL	3,4,5,7	
	A: (6") SAND: (18"), Dark purple Il rounded.	to grayish white,		CL SP	10,21,25,9	
30						
35— - - -						
40	PAGE 1 of O3	CDO1 ADD F	NVIDO	MEN	TAL SERVICES, INC	1

TITLE: NAVAL AIR STATION WHITING	FIELD	LOG of	WELL: N/A	****	BOR	ING NO. WHF-03-SE	3-02
CLIENT: SOUTHNAVFACENGCOM					PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.		DATE STARTED:	01/09/93		COMPLTD: 01/09	/93
METHOD: HSA	CASE SIZE: N/A		SCREEN INT.: NA	/A	PROT	ECTION LEVEL: D	
TOC ELEV:: N/A FT.	MONITOR INST.: OVA	:	TOT DPTH: 12FT.		DPTH	TO \$ N/A FT.	
OGGED BY: D. Lonergan	WELL DEVELOPMENT D	ATE: N/	Δ.		SITE	03 - Waste Solven	t Storage
DEPTH T. T. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DE AND COM		ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	TY SAND: Brown, fine to	very fin	e, some clay.	(7/,7	SM	Hand Auger	
5— (5-7') 14/24 0 SAA	A: Red, medium, tan clay r	mottled.			SM	3,8,11,14	
10 - (10-12') 15/24 0 SAA	A, trace silt.				SM	4,13,19,21	
15—							
20—							
25—							
35—							
10	PAGE 1	-4.000	3000 ADD	TAINTOO!		TAL SERVICES.	****

LIENT: SOUTHNAVFA				2000.	WELL: N/A		00112	NG NO. WHF-03-SE	
TENT: SOUTHNAVE	CENGCO	М					PROJECT NO: RI PHASE IIA		
ONTRACTOR: Groundw	ater Pro	otection	Inc.		DATE STARTED:	1/10/93	/93 COMPLTD: 01/10/93		
ETHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N/	Δ	PROTECTION LEVEL: 0		
OC ELEV.: N/A FT.			MONITOR INST.: OVA	-	TOT DPTH: 12FT.		DPTH	TO T N/A FT.	
OGGED BY: G. Walker			WELL DEVELOPMENT	DATE: N/	A		SITE:	03 - Waste Solven	t Storag
L LABORATORY DE SAMPLE ID. SAMPLE	RECOVERY	(mdd)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2')			ND: Moderate brown, find orly sorted, moist , little		ium, trace silt,		SM	Hand Auger	
5— (5–7')	18/24		ND: Moderate reddish o nce gravel, poorly sorte		ry fine to medium,		SP	7,6,3,7	
0	16/24	O SA	Α.				SM	7,7,9,9	
5									
0									
5—									
0—									
95—									
40							·		

ITLE: NAVAL AIR STATI	ON WHITI	NG FIELD	LOG of	WELL: N/A	m#	BORI	NG NO. WHF-03-S	B-04
CLIENT: SOUTHNAVFACE	NGCOM					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwate	er Protect	tion Inc.		DATE STARTED:	01/10/93		COMPLTD: 01/10/	/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N	′ A	PROTE	CTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 12FT.		DPTH	TO ¥ N/A FT.	
OGGED BY: G. Walker	GGED BY: G. Walker WELL DEVELO			A		SITE:	03 - Waste Solver	t Storage
LABORATORY Z	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2')	0	SAND: Moderate yellow br sorted, moist.	own, fine	to medium, well	• • •	SW	Hand Auger	
5 - (5-7') 18/	/24 0	SAND: Moderate yellow br trace silt.	own, very	fine to medium,	• • •	SW	2,2,2,4	
10-12')	/24 0	SAND: Moderate red brow clay, moist.	in, medium	to coarse, trace		SC	6,6,10,10	
15—								
20								
25—								
30—		•	96			3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
35		·						
40		DACE	<u> 1 of 03</u>	SROA ADD	ENIVIDO	NMEN	TAL SERVICES	TNC

ITLE:	NAVAL A	IK ST	AIION	MHITI	NG FIELD	LOG of	WELL: N/A		BORI	NG NO. WHF-03-S	B-05	
LIENT	T: SOUTH	NAVFA	CENGO	ОМ					PROJ	ECT NO: RI PHASE	IIA	
ONTR	ACTOR: G	round	water P	rotec	tion Inc.	- 11 111	DATE STARTED	: 01/08/93	8/93 COMPLTD: 01/08/			
(ETHO	D: HSA				CASE SIZE: N/A		SCREEN INT.:	N/A	PROTE	PROTECTION LEVEL: D		
OC EL	LEV.: N/A	FT.			MONITOR INST.: OVA		TOT DPTH: 12FT		DPTH	DPTH TO ♀ N/A FT.		
.OGGE	D BY: D.	Loner	gan		WELL DEVELOPMENT	DATE: N/	Α		SITE:	03 – Waste Solver	nt Storage	
DEPTH FT.	ABORATOR SAMPLE IC	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
	(1-2)			0	SILTY SAND: Brown, fine,	well sorte	ed.	/2/2	SM	Hand Auger		
5	(5-7')		20/24	0	SAA, red, brown mottled.				SM	2,2,1,2		
0-	(10-12')	7	19/24	0	SAA, trace clay.				SM	3,7,11,12		
5					·							
0-				,								
5												
0												
1												
55—- - -										·		
40—							•					

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-03	-SB-06
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHA	SE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/18/93	COMPLTD: 01/	/18/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL:	D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 102FT.	OPTH TO \$ N/A FT.	
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/	4	SITE: 03 - Building 29	941
DEPTH FT. SAMPLE SAMPLE RECOVERY (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	Z LITHOLOGIC SYMBOL	SOIL CLASS NI-9/SMOTB	WELL DATA
	ND: Fine, light brown, poorly sorte htly moist.	ed, subrounded,	SP Hand Auger	
	ND: Fine, reddish brown, little cla htly moist.	y, poorly sorted,	SC 9,8,12,14	
10 - (10-12') / 16/24 0 SAI moi	ND: Fine, with reddish clay, poorl st.	y sorted, slightly — —	SC 5,8,8,10	
. 16=17'1 = 100/041 0 1	ND CLAY MIXTURE: Reddish, fine ted, moist, mottled with white sar		SC 7,7,10,12	
	ND: Fine, white with pink mottling, angular.	poorly sorted,	SP 11,11,10,14	
	ND: Fine, whiteish pink, poorly so htly moist, I" pink stratified sand		SP 10,14,14,16	
30 14/24 0 SAI	ND: Fine, pinkish white, poorly so st.	rted, sub rounded,	SP 5,5,4,6	
1	ND: Fine, with trace coarse, white rounded, slightly moist.	e, poorly sorted,	SP 4,5,8,8	
40— 15/24 0 Sai	me as Above.		SP 5,5,7,11	
45————————————————————————————————————	ne as above.		SP 6,5,7,6	
	ND: Pinkish white, poorly graded, k stratified silty sand at 51'2".	subrounded, 1"	SP 5,6,5,6	
55—	PAGE 1 of 03	SSB6 ARR ENVIRO	SP DOMENTAL SERVICE	ES INC

				LOG of WELL: N/A		BORING NO. WHF-03-SB-06 PROJECT NO: RI PHASE IIA			
IENT: SOUTHNAVF						PROJ			
NTRACTOR: Ground	twater P	rotecti	on Inc.	DATE STARTED: 01/18/93			COMPLTD: 01/18/93		
THOD: HSA			CASE SIZE: N/A	SCREEN INT.:	N/A	PROTECTION LEVEL: D			
C ELEV.: N/A FT.			MONITOR INST.: OVA	TOT DPTH: 10:	2FT.		TO \$ N/A FT.		
IGGED BY: R. Nelso	on		WELL DEVELOPMENT	DATE: N/A		SITE:	03 - Building 2941		
LABORATORY L SAMPLE ID. W	RECOVERY	HEADSPACE (ppm)	AND CO	DESCRIPTION DIMMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
]	16/24	ا ،	SAND: Fine, light tan to of rounded, moist.	f white, poorly graded, s	sub	SP	5,8,11,14		
) <u> </u>	14/24	0	Same As Above, slightly mo	pist.		SP	6,7,9,10		
	16/24	0 1	SAND: Fine, pink white, tra slightly moist, subrounded.			SP	7,7,10,9		
- (70-72')	20/24	30	SAND: Fine, pink white, po subangular, trace sandy c			SP	20,19,24,40		
	18/24	30	Same as above, no trace	sandy clay.		SP	12,14,14,15		
	18/24	10	SAND: Fine, off white, poo slightly moist, 1/2" alterna	· -	1 2 4 2 2 4 4 4 4 4	SP	10,10,12,14		
	18/24	4	Same as above, 2" band of fine sand at 85'2".	of purple and reddish bro	owm	SP	10,11,7,7		
	16/24	18	SAND: Fine, tan brown, po 2" purple to red striations		st,	SP	7,8,18,31		
	18/24	60	Same as above.			SP	18,10,9,8		
(100-102')	24/24	0	CLAY: Light brown and ta	n, soft, low plasticity, mo	pist.	CL	7,14,26,24		
5—									

TITLE: NAVAL AIR STATION WHITIN	G FIELD LOG of	f WELL: N/A	BORING NO. WHF-03-SB-07
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protecti	on Inc.	DATE STARTED: 01/27/93	COMPLTD: 01/27/93
METHOD: Hand Augers	CASE SIZE: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO \$ N/A FT.
LOGGED BY: J. Binks	WELL DEVELOPMENT DATE: N/	' A	SITE: 03 - Waste Solvent Storage
DEPTH FIT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS MITHER MITHER MELL DATA
	SAND: Yellow to tan, fine to medium sub-angular.	, poorly graded,	SP Hand Auger
			Land Aven-
5— (5-7') 24/24 0	SAA, lense of red brown clayey sai	nd, fine.	SP Hand Auger
10 — (10-12')	CLAY: Gray, lenses of red brown cl	avev sand	SC Hand Auger
24/24	oca i. oraș, iciisco or rea broair a		SC
15—			
20—			
-			
25—	PAGE 1 of O3	SSB07 ABB ENVIRO	DNMENTAL SERVICES, INC.

TITLE: NAVAL AIR STATION WHITING	FIELD LOG of	WELL: N/A	BORIN	G NO. WHF-03-SB-08
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/08/93	COMPLTD: 01/08/93	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA TOT DPTH: 22FT.		DPTH T	0 ¥ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 0	3 - Waste Solvent Stora
DEPTH TT. FT. COLENDARY SAMPLE SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	LITHOLOGIC	SOIL CLASS	WELL DATA
- 0 SA	ND: Brown, fine, well sorted.		SP	Hand Auger
5—————————————————————————————————————	.TY SAND: Red brown, tan mottled	i. ////	SM	3,7,8,10
10—- (10-12') 19/24 0 SA	A, trace clay.		SM	5,12,17,22
	AYEY SAND: Pink to red with tan r d pebbles.	mottling, trace silt	- sc	9,12.13.18
20 - 18/24 0 SI	LTY SAND: Pink and tan mottled, t	race clay.	SM	6,7,13,19
25—				
30—				
35—				
40—	PAGE 1 of 03S			AL SERVICES, INC.

TITLE: NAVAL AIR STATION WHITING	LOG o	f WELL: N/A	BOR	ING NO. WHF-03-S	B-10	
CLIENT: SOUTHNAYFACENGCOM			PRO	JECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/08/	93	COMPLTD: 01/08	3/93	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROT	ECTION LEVEL: D		
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH	DPTH TO \$ N/A FT.		
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N	/A	SITE	: 03 - Waste Solver	nt Storage	
DEPTH FIT. SAMPLE SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS	<u> </u>	SOIL CLASS	BLOWS/6-IN	WELL DATA	
_ 0 SA	ND: Brown, fine.		SP	Hand Auger		
5— - - - - - - - - - - - - - - - - - - -	ND: Red brown, fine, some silt.		SM	7,9,17,18		
7 (1()=1/ W (2U/24) () 1	AYEY SILT: Red and tan mottled	d, some sand and	ML	4,10,11,14		
15— — (15–17')	AA, red to pink, moist.		ML	6,8,12,13		
20—						
25—						
30—						
35—						
40—J	PAGE 1 of 0	, , , , , , , , , , , , , , , , , , ,	TDONING	TAL SERVICES	. 1110	

ITLE: NAVAL AIR STATI	ON MHITING	FIELD	LOG of	WELL: N/A		BORI	ING NO. WHF-6-SB	-1
LIENT: SOUTHNAVFACE	16СОМ					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwate	er Protectio	n Inc.		DATE STARTED: 12	/04/92		COMPLTD: 12/04	/92
ETHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	\	PROTI	ECTION LEVEL: D	
OC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 22FT.		DPTH	TO \$ N/A FT.	
OGGED BY: S. Consalvi		WELL DEVELOPMENT D	ATE: N/A	4		SITE:	6 - Trans. Oil Disp	osal Area
C L LABORATORY SAMPLE ID. SAMPLE	HEADSPACE (ppm)	SOIL/ROCK D AND COM		ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	0 s	ANDY SILT: Moderate red	dish brow	rn, fine.		ML	POSTHOLE	
5 - (5-7') 12/	1 1	ANDY CLAY: Moderate red f clayey sand pale reddish				CL	3,1,2,1	
10 - 7 24/		LAYEY SAND: Moderate re ark yellow orange streak.	eddish br	own, fine, vertical		SC	2,2,3,4	
15— (15–17') 20/	0 S	AA, 1/8" dark yellow orang	ge sand I	ens.		SC	3,4,4,9	
7 18/		AA, color change to greyi eddish brown mottling.	sh yellow	ı at 20.5 ft., dark		SC	5,7,9,8	
25—								
30—								
35—								
40								

TITLE: NAVAL AIR STA	TION WHITI	NG FIELD	LOG of	WELL: N/A		BORI	NG NO. WHF-6-SB	-2
CLIENT: SOUTHNAVFAC	CENGCOM					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwi	ater Protect	ion Inc.		DATE STARTED: 12	2/04/92		COMPLTD: 12/04	/92
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/	Д	PROTE	CTION LEVEL: D	
TOC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 22FT.		DPTH	TO T N/A FT.	
LOGGED BY: S. Consalv	vi	WELL DEVELOPMENT	DATE: N/	A		SITE:	6 - Trans. Oil Disp	osal Area
E LABORATORY H	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2')	22/24 0	SANDY CLAY: Moderate resorted, no odor.	eddish bro	wn, fine, well		CL		
5 (5-7')	20/24 0	SAA, litho change at 5.5' yellow, fine.	to clayey	sand greyish		CL SC		
1								
10	18/24 0	SILTY SAND: Moderate re yellow clay mottling.	eddish bro	wn, fine, greyish		SM	 ,	
15—————————————————————————————————————	16/24 8.5	SAA, moderate reddish or pink, fine to medium sand.		ve greyish orange		SM		
20-22')	16/24 0	SAA, red silty sand over a well sorted over 4" moder				SM		
25—								
30—								
35—								
							-	
40— 1 1 1	1 1	PAGE			, 1		TAL SERVICES	

TITLE: NAVAL AIR STATION WHITING	LOG o	f WELL: N/A	В	DRING NO. WHF-6-SB-3	
LIENT: SOUTHNAVFACENGCOM			PF	ROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 12/05	792	COMPLTD: 12/05/92	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	EN INT.: N/A PROTECTION LEVEL: D		
TOC ELEV.: N/A FT.	MONITOR INST.: 0VA	TOT DPTH: 119FT.	DP	TH TO \$ N/A FT.	
OGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N	/A	SI	TE: 06 - Trans. Oil Disposal Are	
DEPTH THE TITE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS	TION	SYMBOL SOIL CLASS	BECM2/6-IN NI-9/SMOTB	
	ANDY SILT: Grey red, fine, well s lay, moderate red, moist.	orted, some roots,	CL	2,3,4,3	
5—————————————————————————————————————	AA, dry, increase sand.		CL	3,4,4,4	
10-12')	SAA.		CL	5,5,7,5	
15—————————————————————————————————————	SILTY SAND: Moderate reddish or	ange to white, fine.	SM	9,7,8,8	
20 - 18/24 0	SAA, moderate reddish white clay		SN	8,9,8,8	
25—————————————————————————————————————	SAND: Moderate orange pink to w	hite, fine.	SI	14,24,39,42	
	SAND: White to very pale orange lenses.	white, fine, red	S	8,19,21,19	
35—	SAA, greyish pink orange to pale	yellow orange.	S	8,15,21,32	
40—	PAGE 1 of C	200000		M / ENTAL SERVICES, INC.	

TITLE: NAVAL AIR STATION WHITING	FIELD LOG of	WELL: N/A	BORIN	IG NO. WHF-6-SB-3	
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 12/05/92		COMPLTD: 12/05/92	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTEC	CTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH T	0 ¥ N/A FT.	
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/	Α	SITE: 0	06 - Trans. Oil Dispos	al Area
DEPTH FT. SAMPE SAMPE SAMPE SAMPE SAMPE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS	BLOWS/6-IN	WELL DATA
] SA	ND: Greyish pink, very fine, 1/4" lown sand.		SM	13,15,27,25	
45— - - - - - - - - - - - - - - - - - - -	A, no brown layer, light red strea	iks.	SM	13,17,19,18	
50— (50-52) 16/24 < 1 SA	Α.	777	SM	8,14,18,17	
	ND: Greyish pink, fine, moderate i ses.	reddish orange	SP	9,15,22,24	Will have an own design the design of the second
	ND: Greyish pink to pale yellowish arse, poorly sorted.	n orange, fine to	SW	5,5,19,16	
65— - 16/24 0 SA	ND: Greyish pink to pale yellowish	n orange, fine.	SP	7,13,14,16	
70————————————————————————————————————	ND: Greyish pink, fine to coarse.		SP	17,16,23,22	
75————————————————————————————————————	.A, greyish pink, no color change.		SP	15,24,22,27	
80—	PAGE 2 of 06	SDO2 ADD SAUTE	SW	AL SERVICES. IN	10

		MUTIT	IG FIELD	LOG of	WELL: N/A		BORI	NG NO. WHF-6-SB	-3
LIENT: SOUTHNAV	ACENGO	ОМ					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groun	dwater P	rotecti	on Inc.	, , , , , , , , , , , , , , , , , , ,	DATE STARTED: 12	/05/92		COMPLTD: 12/05	/92
ETHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N/A		PROTE	CTION LEVEL: D	
OC ELEY: N/A FT.			MONITOR INST.: 0VA		TOT DPTH: 119FT.		DPTH	TO ¥ N/A FT.	
OGGED BY: S. Con	salvi		WELL DEVELOPMENT	DATE: N/	A		SITE:	06 - Trans. Oil Dis	posal Area
L LABORATORY Z	RECOVERY	HEADSPACE (ppm)	soil/Rock AND CO Continued	DMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-	16/24	1	SAA, white, traces gravel.			• • •	SW	16,25,31,42	
5—	20/24	0	SAND: White, fine, poorly (graded, sli	ght pink hue.		SP	39,33,52,55	
)— - - -	10/24	0	SAA, no pink hue, moderat	e orange	pink striations.		SP	28,34,37,35	
5	20/24	-	SAND: White to dark yellownoist.	wish orang	ge, fine, very		SP	26,31,30,28	
0	22/24	-	SAA, poorly graded.				SP	23,21,28,40	
5	23/24	-	CLAY: Very dark red, yell	owish grey	/ mottling.		СН	6,4,9,17	
0—	/24		CLAY: Dark grey.		• .		СН	2,4,7,14	
5—	24/24		CLAY: Very dark red, ligh lenses. SAA.	t grey mo	ttling, very thin silt		СН	29,8,24,44	

TITLE: NAVAL AIR S	TATION	WHITI	NG FIELD	LOG of	WELL: N/A		BOR	ING NO. WHF-6-SB	-4
CLIENT: SOUTHNAVE	ACENGO	OM					PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Ground	dwater P	rotect	tion Inc.		DATE STARTED: 12	2/04/92		COMPLTD: 12/04	/92
METHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N/	Α	PROT	ECTION LEVEL: D	
TOC ELEV.: N/A FT.			MONITOR INST.: OVA		TOT DPTH; 22FT.		DPTH	I TO \$ N/A FT.	
LOGGED BY: S. Cons	alvi		WELL DEVELOPMENT	DATE: N/	A -		SITE	: 6 - Trans. Oil Disp	osal Area
L LABORATORY DE LA	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2')	16/24	250	SILTY SAND: Dark yellowi CLAYEY SAND: Moderate			/// = = =	SM	2,5,5,5	
5 (5-7')	12/24	0	SILTY SAND: Moderate re	eddish broi	wn, fine		SM	4,4,3,4	
10-12')	16/24	0	SAA.				SM	4,7,7,12	
15—	14/24	0	SILTY CLAY: Moderate re yellow, pale grey mottling		wn to dusky		CL	-,-,-,	
20-	14/24	0	SAND: White, moderate or	ange pink	mottling.		SM	-,-,-,	
25—									
30—									
35—									
40_									
			PAGE	1 of 06	SBO4 ARR	ENVIRO	NMEN	TAL SERVICES	TNC

TITLE: NAVAL AIR STATION WHITI	NG FIELD LOG of	WELL: N/A	BORING NO. WHF-17-SB-01
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protect	ion Inc.	DATE STARTED: 01/19/93	COMPLTD: 01/19/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO \$ N/A FT.
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/	Α	SITE: 17 - Crash Training Area
DEPTH FT. GI BIGMES GI BIGMES SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	2 LITHOLOGIC SYMBOL	SOIL CLASS B OF OF MELL DATA
-			POSTHOLE
5 (5-7') 15/24 20	CLAYEY SAND: Reddish brown, fine,	some gravel.	SC 2,7,11,13
10	SILTY SAND: Reddish brown, fine, w	ell sorted.	SM 3,9,8,9
15— (15–17') 18/24 < 1	SAA.		SM 6,13,13.12
20—			
25—	·		
30—			
35—			
40—	PAGE 1 of 175	 SB01 ABB FNVIRO	NMENTAL SERVICES, INC.

·	FIELD LOG of	WELL: N/A	BORING NO. WHF-17-SB-02
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/19/93	COMPLTD: 01/19/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
FOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT OPTH: 12FT.	DPTH TO \$ N/A FT.
.0GGED BY: B. Colby	WELL DEVELOPMENT DATE: N/	Α	SITE: 17 - Crash Training Area
DEPTH SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS THE SOIL CLASS
5—————————————————————————————————————	AYEY SAND: Reddish brown, fine,	trace gravel.	SC 2,6,15,14
10— - (10–12') / 20/24 < 1 SII	TY SAND: Reddish brown, fine, w	vell rounded.	SM 6,13,19,26
15—			
20			
25—			
30—			
35—			
40—		-	

LIENT: SOUTHNAVEADNTRACTOR: Ground ETHOD: HSA DC ELEV.: N/A FT.					000	COT NO. OT BUILDE	77.4
ETHOD: HSA OC ELEV.: N/A FT.	water Protec				FRUJ	ECT NO: RI PHASE	114
OC ELEV.: N/A FT.		tion Inc.	DATE STAR	RTED: 01/07/93		COMPLTD: 01/07	/93
		CASE SIZE: N/A	SCREEN IN	T.: N/A	PROTECTION LEVEL: D		
		MONITOR INST.: OVA	TOT DPTH:	12FT.	DPTH	TO T N/A FT.	
OGGED BY: D. Loner	gan	WELL DEVELOPMENT	DATE: N/A		SITE:	: 17 - Crash Training	g Area
L LABORATORY L SAMPLE ID. W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPTION OMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
	0	SILTY SAND: Red, fine, tra	ace clay.		SM	POSTHOLE	
5	05/24 0	CLAYEY SILT: Red, dense			ML	PUSHED	
(10-12')	24/24 0	SILTY SAND: Red, trace o	clay.		SM	PUSHED	
5—			•				
5—							
5—			·				

TITLE: NAVAL AIR STATION WHIT	ING FIELD	LOG of WELL: N/A		BORING NO. W	HF-17-SB-04	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO:	RI PHASE IIA	
CONTRACTOR: Groundwater Protec	ction Inc.	DATE STAR	TED: 01/07/93	COMPL	.TD: 01/07/93	
METHOD: HSA	CASE SIZE: N/A	SCREEN IN	T.: N/A	PROTECTION L	EVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH:	12FT.	DPTH TO \$ N/A FT.		
LOGGED BY: D. Lonergan	WELL DEVELOPMENT	DATE: N/A		SITE: 17 - Cra	sh Training Area	
DEPTH FT. TI. SAMPLE SAMPLE RECOVERY (Ppm)	SOIL/ROCK AND CO	DESCRIPTION DMMENTS	LITHOLOGIC	SOIL CLASS	MELL DATA	
30	SILTY SAND: Red, fine, tra	ace clay.		POS	THOLE	
5 (5-7') 24/24 0	CLAYEY SILT: Red, dense.			ML PUS	SHED	
10 (10-12') 24/24 0	SILTY SAND: Red, trace c	lay.		SM PUS	SHED	
15—						
20						
25—						
30—						
35—						
40—	PAGE					

TILE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORIN	G NO. WHF-17-SB	-05
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/19/93		COMPLTD: 01/19/	93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTEC	CTION LEVEL: D	
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH T	O T N/A FT.	
LOGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/A	1	SITE: 1	7 - Crash Training	Area
DEPTH T. T. SAMPLE SAMPLE RECOVERY (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				POSTHOLE	
	NDY CLAY: Brown, mediun plasticit ht odor.	ty, grey streaks,	CL	3,2,3,7	
10— - (10-12') 24/24 62 SA	Δ.		CL	1,3,6,10	
	A, litho change at 15.5' to SAND: i te, fine, well rounded.	reddish brown to	CL SP	6,8,14,15	
	ND: Reddish brown to white interb nded.	peded, fine, well	SP	9,14,17,21	
25—					
30					
35—					
40—	PAGE 1 of 17S	BOS ARR ENVIR	ONMENT	AL SERVICES.	INC

	LOG of WELL: N/A		BUNING NO. WHI	-17-SB-06	
ОМ			PROJECT NO: RI	PHASE IIA	
TRACTOR: Groundwater Protection Inc. DATE STARTED: 01/07/9): 01/07/93	
CASE SIZE: N/A	SCREEN INT.:	N/A	PROTECTION LEVEL: D		
MONITOR INST.: OVA	TOT DPTH: 17F	Т.	DPTH TO \$ N/A F	₹Т.	
WELL DEVELOPMENT	DATE: N/A		SITE: 17 - Crash	Training Area	
и с		LITHOLOGIC SYMBOL	SOIL CLASS	9 2 WELL DATA	
500 SILTY SAND: Brown, grey	stained, heavy odor.			OLE	
20 CLAYEY SILT: Red and to	an, black mottled.		ML 5,7,14	,15	
O SILTY SAND: Orange red,	fine.		SM 9,13,12	2,15	
SAA, orange pink, some c	oarse.		SM 18,18,25	5,25	
:					
	•				
r	CASE SIZE: N/A MONITOR INST.: 0VA WELL DEVELOPMENT SOIL/ROCK AND C SILTY SAND: Brown, grey CLAYEY SILT: Red and to	CASE SIZE: N/A CASE SIZE: N/A MONITOR INST.: OVA WELL DEVELOPMENT DATE: N/A SOIL/ROCK DESCRIPTION AND COMMENTS SILTY SAND: Brown, grey stained, heavy odor. CLAYEY SILT: Red and tan, black mottled. O SILTY SAND: Orange red, fine.	CASE SIZE: N/A CASE SIZE: N/A MONITOR INST.: OVA MONITOR INST.: OVA TOT DPTH: 17FT. WELL DEVELOPMENT DATE: N/A SOIL/ROCK DESCRIPTION AND COMMENTS SILTY SAND: Brown, grey stained, heavy odor. CLAYEY SILT: Red and tan, black mottled.	DATE STARTED: 01/07/93 COMPLTO CASE SIZE: N/A SCREEN INT.: N/A PROTECTION LEV MONITOR INST.: OVA TOT DPTH: 17FT. DPTH TO \$ N/A F WELL DEVELOPMENT DATE: N/A SITE: 17 - Crash SOIL/ROCK DESCRIPTION AND COMMENTS SOIL/ROCK DESCRIPTION AND COMMENTS SM POSTH CLAYEY SILT: Red and tan, black mottled. SM POSTH SM 9,13,12	

ITLE: NAVAL AIR S				LOG of	WELL: N/A		BOR	ING NO. WHF-17-SE	3-07
CLIENT: SOUTHNAVFACENGCOM							PROJ	IECT NO: RI PHASE	IIA
ONTRACTOR: Groun	dwater l	rotec	tion Inc.		DATE STARTED:	01/18/93	··	COMPLTD: 01/18/	/93
ETHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N	I/A	PROT	ECTION LEVEL: 0	
OC ELEV.: N/A FT.			MONITOR INST.: OVA		TOT DPTH: 17FT	•	DPTH	TO T N/A FT.	
OGGED BY: B. Colt	У		WELL DEVELOPMENT	DATE: N/	A		SITE	17 - Crash Training	g Area
LABORATORY BLANCE ID. SAMPLE ID. S	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		3.5						POSTHOLE	
5— (5-7')	16/24	2	SANDY CLAY: Olive to red	dish brow	n, medium		CL	2,5,8,12	
-			plasticity.						
0-	18/24	0	SAND: Reddish brown, fine	. well sor	ted.		SP	2,6,6,8	
-		•		,					
5—- (15–17')	15/24	0	SAND: White, red interbed sorted, well rounded.	s, fine to	medium, well		SP	3,8,11,17	
-								·	
0-									
25—									
			,						
30—									
35—									
,									
40—									

			LOG of WELL: N/A			BORING NO. WHF-17-SB-08		
LIENT: SOUTHNAVFACENO					PROJ	ECT NO: RI PHASE		
CONTRACTOR: Groundwater	Protection	Inc.	DATE STARTED: 0		ı ·	COMPLTD: 01/18.	/93	
IETHOD: HSA		CASE SIZE: N/A	SCREEN INT.: N/	4	PROTE	CTION LEVEL: D		
OC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH: 12FT.		DPTH	TO ♀ N/A FT.		
OGGED BY: B. Colby		WELL DEVELOPMENT DATE: N	/A		SITE:	17 - Crash Trainin	g Area	
SAMPLE SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIF AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5—					CL			
(5-7')	4 3.5 CL	AY: Brown, medium plasticity.				2,5,6,12		
10 - (10 - 12')	4 0 SA	ND: Reddish brown, fine, well so	rted.		SP	6,7,7,8		
15—								
20—								
25—								
30—								
35—								

				WHITI		LOG 01	WELL: N/A		BOHI	NG NO. WHF-17-SE	3-09
LIENI	IT: SOUTHNAVFACENGCOM						PROJ	ECT NO: RI PHASE	IIA		
ONTR	ACTOR: G	round	water P	rotec	tion Inc.		DATE STARTED:	01/06/93		COMPLTD: 01/06	3/93
ETH0	D: HSA				CASE SIZE: N/A		SCREEN INT.: N	/ A	PROT	ECTION LEVEL: D	
OC EL	LEV.: N/A	FT.			MONITOR INST.: OVA		TOT OPTH: 12FT.		DPTH	TO \$ N/A FT.	
OGGE	D BY: D.	Loner	gan		WELL DEVELOPMENT	DATE: N/	Α		SITE:	17 - Crash Trainin	g Area
P.T.	ABORATOR	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT HMENTS	TON :	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-	(0-2')			0	SILTY SAND: Brown, fine.				SM	POSTHOLE	
5			23/24	0	CLAYEY SILT: Red and tar sorted, tight.	n mottled	, trace clay, well		ML	9,12,15,20	
10 -	(10-12')		22/24	0	SAA, no mottling.				ML	8,11,13,17	
15-											
20											
25—						·					
30—											
35—											
40—	-										

	LUG Of	WELL: N/A	BORING NO. WHF-17-SB-10
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/18/93	COMPLTD: 01/18/93
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	OPTH TO ₹ N/A FT.
OGGED BY: B. Colby	WELL DEVELOPMENT DATE: N/	4	SITE: 17 - Crash Training Area
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	2 LITHOLOGIC SYMBOL	SOIL CLASS NOTB SAMELL DATA
5—————————————————————————————————————	AYEY SAND: Reddish brown to red	ddish white, fine.	SC 6,10,13,7
	.TY SAND: Reddish brown, fine, w te interbeded.	ell sorted, reddish	SM 8,10,13,16
5— - - 0—			
5—			
0			

TITLE: NAVAL AIR STATION WHITING	LIELD	LOG of WELL: N/A		BORI	ING NO. WHF-18-SB	-01	
LIENT: SOUTHNAVFACENGCOM				PROJ	JECT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTE	DATE STARTED: 01/05/93		COMPLTD: 01/05/93		
ETHOO: HSA	CASE SIZE: N/A	SCREEN INT.:	N/A	PROT	ECTION LEVEL: D		
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12F	т	DPTH	TO ¥ N/A FT.		
OGGED BY: D. Lonergan	WELL DEVELOPMENT DA	TE: N/A		SITE:	18 - Crash Training) Area	
DEPTH OFFTH SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DE: AND COMM		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
O SA	ND: Red brown, fine, silt.			SM	POSTHOLE		
5 - (5-7') 19/24 0 SA	Δ.			SM	2,3,2,3		
0 - (10-12')	A, tan to brown.			SM	2,3,4,4		
5							
5—							
			·				
5—							
	PAGE 1	of 18SB01 AB	B ENVIRO	NMENT	TAL SERVICES.	INC	

TITLE: NAVAL AIR STATION WHITING FIE	ELO LOG of V	WELL: N/A	BORING NO. WHF-18-SB-02
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection Inc	c. [1	DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO \$ N/A FT.
	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area
DEPTH FIT. SAMPLE SAMPLE FOUR	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS ROTA ZI-9/SMOTA ZI-9/SMELL DATA
	Y SAND: Red brown, fine, silt.		POSTHOLE
5— (5-7') 17/24 0 SAND	: Light brown, fine, silt.		SM 2,3,3,5
10— - (10–12')): Pink to red, fine to medium, silt	t, slight odor.	3,5,5,7
15— (15-17') 19/24 0 SAND): Red to red brown, medium, trad	ce silt.	SP 7,8,13,17
20): White, medium to coarse, red s	striations.	SP 8,8,6,7
25			
30—			
35—			
40—			
	PAGE 1 of 18S	B02 ABB ENVIRO	ONMENTAL SERVICES, INC.

ITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A		ING NO. WHF-18-SB-0 HECT NO: RI PHASE IIA		
LIENT: SOUTHNAVFACENGCOM						
ONTRACTOR: Groundwater Protection		DATE STARTED: 01/06/9		COMPLTD: 01/06/93	3	
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A		ECTION LEVEL: D		
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 42FT.		TO \$ N/A FT.		
DGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/			: 18 - Crash Training A	rea	
RECOVERY (PDM)	SOIL/ROCK DESCRIPT AND COMMENTS	ZZ LITHOLOGIC SYMBOI	SOIL CLASS	BLOWS/6IN	WELL DATA	
12 SA	ND: Brown, fine, silt.		SM	POSTHOLE		
5— (5-7') 19/24 35 SA	Α.		SM	3,6,8,9		
0 - (10-12')	LTY SAND: Pink to white, fine.	· · · · · · · · · · · · · · · · · · ·	- sc	9,17,20,22		
5— (15-17') 19/24 25 SA	Α.	7/2	SM	11,18,25,29		
20/24 10 CL	AYEY SAND: Pink and brown stria	ated, trace clay.	_ sc _	14,14,12,13		
5—(25-27') 19/24 4 CL	AYEY SILT: Red brown, well sorte	ed. //	ML	6,11,15,14		
0 -	AA, pink to grey.	77	ML	3,4,5,9		
	AA,litho change at 36' SAND: orna edium, trace gravel.	age white, fine to	ML SP	12,19,30,33		
(40-42) 22/24 0 CL	AYEY SILT: Red to pink, slightly	moist.	ML	2,2,3,5		
15	PAGE 1 of 18	0004	700147	 		

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORIN	S NO. WHF-18-SB-06
CLIENT: SOUTHNAVFACENGCOM		PROJE	CT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/05/9	93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTEC	TION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH T	0 ♀ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/	A	SITE: 18	3 - Crash Training Area
DEPTH FI. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	Z Z Z CVARGO	SOIL CLASS	WELL DATA
]	.TY SAND: Grey to black, stained	i.	SM	POSTHOLE
5— (5-7') 17/24 70 SA	ND: Grey to tan, fine to medium,	trace silt.	SP	5,4,4,7
10 - (10-12') 18/24 630 SII	.TY SAND: Grey to white, pink hu	ne, fine, stained.	SM	6,11,18,21
15————————————————————————————————————	ND: White to pink, fine to medium	, trace silt.	SP	13,17,21,20
20—22°) 19/24 0 SA	ND: Orange white, medium, pink s phtly moist.	triated, trace silt,	SP	23,30,32,42
25————————————————————————————————————	ND: White to grey, fine, sift, no o	odor.	SM	28,25,27,33
30—				
35—				
40—	PAGE 1 of 18			AL SERVICES, INC.

TITLE: NAVAL AIR S	TATION	WHITI	NG FIELD	LOG of	WELL: N/A		BOR	ING NO. WHF-18-SE	1-07
LIENT: SOUTHNAVE	ACENG	COM					PROJ	JECT NO: RI PHASE	IIA
CONTRACTOR: Groun	dwater i	Protec	tion Inc.		DATE STARTED:	01/05/93		COMPLTD: 01/05	/93
IETHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N	/A	PROT	ECTION LEVEL: D	
OC ELEV: N/A FT.			MONITOR INST.: 0VA	4	TOT DPTH: 17FT.		OPTH	TO I N/A FT.	
OGGED BY: D. Lone	ergan		WELL DEVELOPMENT	DATE: N/	A		SITE:	18 - Fire Training	
L LABORATORY W S	RECOVERY	HEADSPACE (ppm)		CDESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		O	SILTY SAND: Light brown	, no smell,	staining.		SM	POSTHOLE	
5	18/24	0	SAND: Red brown, medium	ı, trace silt			SP	2,3,2,4	
10	18/24	0	SAND: Reddish brown, me	dium to co	arse.		SP	3,6,7,9	
- - - (15-17')	20/24	0	SAND: Red brown to white	e striated,	fine, silt.		SM	6,10,13,15	
0-									
25—							•		
0-									
35—									
10-1									
~			PΛGI	E 1 of 18:	SRO7 ARR	ENVIDO	NMEN	TAL SERVICES	TNC

TITLE: NAVAL AIR STATION WHITING F	IELD LOG of WELL: N/A	· .	BORING NO. WHF-18-SB-08
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection 1	nc. DATE STA	RTED: 01/04/93	COMPLTD: 01/04/93
METHOD: HSA	CASE SIZE: N/A SCREEN IN	IT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA TOT DPTH	27FT.	DPTH TO ♀ N/A FT.
LOGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/A		SITE: 18 - Crash Training Area
DEPTH FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC	SOIL CLASS BELL DATA
	D: Light to dark brown, fine, silt, poorly gra vy diesel odor.		Hand Auger
(4 40)	, reddish brown, trace clay.		4,5,4,5
(10-12) / 20/24 33 odo	D: Light brown, medium to coase, heavy die r, wet, litho change at 11 ft. to tan mottled graded to clay.	sei <u>Marada</u>	SP CL 12,14,19,18
	D: White, medium to coase, 1" stained layer a diesel odor.	at top	SP 17,19,21,24
	D: Orange and white striations, medium, tradedor.	e silt,	7,11,18,23
1 7 1 1 14/24 0 1	D: Orange and white striations, medium to c dor.	parse,	SP 5,9,16,20
30-			
35—			
40—	PAGE 1 of 18SB08	ABB ENVIRON	MENTAL SERVICES, INC.

				Ţ	LOG of	of WELL: N/A BORING NO. WHF-18-SB-09		-09		
.IENT: SOUTH	NAVFA	CENGC	ОМ					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: G	roundw	ater P	rotec	tion Inc.		DATE STARTED:	01/05/93		COMPLTD: 01/05	/93
ETHOD: HSA				CASE SIZE: N/A		SCREEN INT.: N	/A	PROTE	ECTION LEVEL: D	
OC ELEV.: N/A	FT.			MONITOR INST.: OVA		TOT DPTH: 17FT.		DPTH	TO ¥ N/A FT.	
LOGGED BY: D. Lonergan WELL DEVELOPMENT DA			DATE: N/	Α		SITE:	18 - Crash Training	g Area		
LABORATOR SAMPLE IC	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK (AND CO	DESCRIPT MMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-			0	SAND: Tan to brown, fine, s	silt.			SM	POSTHOLE	
5 - (5-7')		18/24	0	SAA, red brown.				SM	3,4,3,5	
0		20/24	0	SAND: Red to pink, fine to	medium,	white striated.		SM	5,6,9,10	
5-(15-17')		18/24	0	SAA.				SM	5,9,14,16	
0										
5—								-		
									·	
35—										
10										-

TITLE: NAVAL AIR STATI	ION WHITI	NG FIELD	LOG of	WELL: N/A		BOR	NG NO. WHF-18-SE	3-10
CLIENT: SOUTHNAVFACE	NGCOM					PRO.	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwat	er Protect	ion Inc.		DATE STARTED: 0	1/04/93		COMPLTD: 01/04	/93
METHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/A	1	PROT	ECTION LEVEL: 0	
TOC ELEV.: N/A FT.	OC ELEV.: N/A FT. MONITOR INST.: OVA TOT DPTH: 17FT. DPTH TO \$ N/A FT.							
LOGGED BY: D. Lonergan WELL DEVELOPMENT DATE: N/A SITE:				18 - Crash Training	g Area			
L LABORATORY L SAMPLE ID. W	HECOVERY HEADSPACE (ppm)	SOIL/ROCK (DESCRIPT MMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	0	SAND: Light brown, fine.				SP	POSTHOLE	
(5-7')	/24 0	SAND: Light brown to brow & clay.	nish oran	ge, fine, some silt		sc	2,5,9,14	
10 —	/24 0	SAND: White to orange, fine	e, slightly	moist.		SP	5,10,15,18	
15—	/24 0	SAND: White to reddish ora	inge, fine	to medium.		SP	4,7,12,17	
20—								
25—								
30—								
35—								
1								
40—	• '		1 of 18	CB10 ABB		& 1 & 4 *** & 1	TAL SERVICES	TNO

TILE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-29-SB-1	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/07/93	COMPLTD: 01/09/93	
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 137FT.	DPTH TO ¥ 137 FT.	
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	DATE: N/A SITE: 29 - Hobby Shop		
SAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC	SOIL CLASS RANGO SANGO ZI-9/SANGO ZI-0ATA	
7 10-27 1 1 1 1	ND: Moderate brown, fine to medi orly sorted, moist.	um, trace silt,	SP Hand Auger	
5— (5-7') Z2/24 O MO	ND: Grey orange, fine to medium, st.	well sorted,	SW Push	
10————————————————————————————————————	AY: Pale orange, dry, tight.		CL Push	
	ND: Moderate red orange to pale Il sorted, moist.	e orange, medium,	SW Push	
20————————————————————————————————————	ND: Pale yellow orange, fine to m /.	edium, well sorted,	SW Spin	
25— - - - - - - - - - - - - - - - - - - -	A, moderate orange pink.	• • •	SW Spin	
30 -	A, very pale orange.	• • •	Spin	
35————————————————————————————————————	.A.	• • •	Sw	
40	PAGE 1 of 2S	. ARR FARITS	SW DONMENTAL SERVICES, INC.	

TITLE: NAVAL AIR STATION WHITING	LOG of WELL	: N/A	BORING NO. WHF-29-SB-1		
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA		
CONTRACTOR: Groundwater Protection	Inc. DATE	STARTED: 01/07/93	COMPLTD: 01/09/93		
METHOD: HSA	CASE SIZE: N/A SCRE	EN INT.: N/A	PROTECTION LEVEL: D		
TOC ELEV: N/A FT.	MONITOR INST.: OVA TOT	DPTH: 137FT.	DPTH TO ♀ 137 FT.		
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A		SITE: 29 - Hobby Shop		
CEPTH FT. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC	SOIL CLASS PB Zi-9/SMO TZ ZI-MELL DATA		
09/24 0 SA		• • •	Spin		
45— - 08/24 < 1 SA/	., 4" lens of sandy clay.	• • •	Spin		
50 -	, pale yellow orange.	• • •	SW 20,23,34,37		
55————————————————————————————————————	, very pale orange.	• • •	SW 10,10,14,17		
60-62) 18/24 0 SAA	, 3" clayey sand lens.	• •	SW 20,27,22,22		
	D: Pale orange, fine to medium, trace : ed, moist.	silt, poorly	SP 28,26,29,28		
70————————————————————————————————————	, sharp contact to fine clayey sand.	• • •	SW 17,24,42,58		
	D: Very pale orange, medium to coarsi ed, dry.	e, poorly	SP 17,19,24,31		

TLE: NAVAL AIR STATION F	INI I INO I	-1650	LOG of	WELL: N/A		BORII	NG NO. WHF-29-SB	-1
IENT: SOUTHNAVFACENGCO	M			· · · · · · · · · · · · · · · · · · ·		PROJE	ECT NO: RI PHASE	
NTRACTOR: Groundwater Pr	otection	Inc.		DATE STARTED:	01/07/93	COMPLTD: 01/09/93		
THOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/				
C ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 137FT.				
OGGED BY: G. Walker WELL DEVELOPMENT D			DATE: N/	A			29 - Hobby Shop	
SAMPLE SAMPLE TO SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
22/24	O SA	A.				SP	15,22,25,35	
22/24		ND: Very pale orange, '.	fine to me	dium, well sorted,	• • •	SW	9,12,21,24	
18/24		A, 4" lens of fine to me very, pale orange coar		i, abrupt contact	• • •	SW	5,14,26,29	
16/24		ND: Very pale orange, ted, dry.	medium to	coarse, well	• • •	SW	7,14,27,30	
7 24/24	0 SA	A.			• • •	SW	18,33,43,60	
5——————————————————————————————————————	O SA	A, mottled moderate re	ed orange		• • •	SW		
24/24	0 SA	A, very pale orange.			• • •	SW		
5——————————————————————————————————————	0 54	.			• • •	SW		
				•		\ SW /		

TITLE: NAVAL AIR STATION WHITING I	LO	G of WELL: N/A		BORII	NG NO. WHF-29-SB	-1
CLIENT: SOUTHNAVFACENGCOM				PROJE	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTE	D: 01/07/93	COMPLTD: 01/09/93		
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.:	N/A PROTECTION L		CTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 137	'FΤ.	DPTH TO ¥ 137 FT.		
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE	: N/A		SITE: 29 - Hobby Shop		
DEPTH FT. SAMPLE SAMPLE COVERY HEADSPACE (Ppm)	SOIL/ROCK DESC AND COMMEN Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
24/24 0 SA/	Δ.		• • •	SW		
125— - (125-127' / 24/24 0 SA/	Δ.		• • •	SW		
	ND: Very pale orange, mediul ted, wet.	m to coarse, well		SW	21,26,33,36	
35————————————————————————————————————	A, saturated.			SW	8,12,14,14	· · · · · · · · · · · · · · · · · · ·
40—						
45—						
50—						
155—						
160—						

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BOR	ING NO. WHF-29-SE	3-2	
CLIENT: SOUTHNAVFACENGCOM			PRO-	JECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/06/	93	COMPLTD: 01/06/93		
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A PROTECTION LEVEL: D				
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 14FT.	DPTH	TO Ţ N/A FT.		
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	Α	SITE	: 29 - Hobby Shop		
DEPTH FI. SAMPE SAMPE SAMPE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	20 Z	SYMBOL SOIL CLASS	8LOWS/6-IN	WELL DATA	
	ND: Dark yellowish orange, fine to ted, subangular, moist.	o medium, well	.•]	Hand Auger		
5— - - - - - - - - - - - - - - - - - - -	Α.	• •	SW	-,-,-,-		
	AY: Dark yellowish orange, very f rd, mottled, dry. A.	ine, trace sand,	CL	12.14.21.45 15,22,35,35		
15—						
25						
30						
35—						
40—	PAGE 1 of 29	SB02 ARR ENV	IRONMEN	TAL SERVICES	: TNC	

TITLE: NAVAL AIR STATION WHITING FIELD	L06 o	WELL: N/A		BOR	ING NO. WHF-29-S	B-3
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED:	01/06/93	COMPLTD: 01/06/93		
METHOD: HSA CASE SIZE: N/A		SCREEN INT.: N/	Α	PROT	ECTION LEVEL: D	
TOC ELEV.: N/A FT. MONITOR INST.: 0V	A	TOT DPTH: 12FT.		DPTH	TO T N/A FT.	
LOGGED BY: G. Walker WELL DEVELOPMEN	T DATE: N/	Ά.		SITE	29 - Hobby Shop	
SOUL/ROCK DESCR (Ppm) AND COMMEN. T. LABORATORY SOUL/ROCK DESCR (Ppm) AND COMMEN.		TON	LITHOLOGIC SYMBOL	SOIL CLASS	8LOWS/6-IN	WELL DATA
- (0-2') O SAND: Fine to medium, we	ell sorted, s	subangular, moist.	• • •	SW	Hand Auger	
5— 20/24 0 SAND: Greyish orange, fin poorly sorted, sub- angu		um, trace clay,		SC	2 - 1979-19 2 - 2 - 2	
10— - (10-12') 18/24 0 SAA.				sc	-,-,-,-	
15—						
20—						
25—						
30—						
35—						
40						
PAGE	E 1 of 29	SB03 ABB	ENVIRO	NMEN.	TAL SERVICES	INC.

		tion Inc.				PROJ	ECT NO: BI PHASE	IIΔ
ETHOD: HSA OC ELEY.: N/A FT.	ter Protec	tion Inc.				PROJECT NO: RI PHASE IIA		
OC ELEY: N/A FT.				DATE STARTED: 0	1/06/93		COMPLTD: 01/06	/93
		CASE SIZE: N/A		SCREEN INT.: N/A		PROTECTION LEVEL: D		
IGGED BY: G. Walker	TOC ELEY.: N/A FT. MONITOR INST.: OVA TOT DPTH: 17FT. DPTH TO ♥ N/A F					DPTH	TO ¥ N/A FT.	
LOGGED BY: G. Walker WELL DEVELOPMENT D			DATE: N/	Α		SITE:	29 - Hobby Shop	
LABORATORY W SAMPLE ID. W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	CDESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2')	< 1	SAND: Moderate brown, fi subrounded, moist, petrole	, fine to medium, well sorted, roleum odor.			SW	Hand Auger	
5 (5-7') 18	8/24 220		ND: Dark yellowish brown to moderate yellowish own, very fine to medium, trace clay, poorly sorted, sist.			SP	4,4,3,3	
0	7/24 1	CLAY: Greyish orange, fin change at 10.5' to very p				CL	4,18,15,20	
15—(15–17')	12/24 1.5	SAA, litho change at 16' t subangular, moist.	to very fin	e to medium sand,		SP	7,12,14,10	
0								
25—								
-			·					
35								
40								

FITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-29-SB-5
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/06/93	COMPLTD: 01/06/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
FOC ELEY: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ♀ N/A FT.
.OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A	\	SITE: 29 - Hobby Shop
DEPTH DEPTH SAMPLE SAMPLE GPM GPM GPM	SOIL/ROCK DESCRIPTI AND COMMENTS	2 Z LITHOLOGIC SYMBOL	SOIL CLASS SOIL CLASS AMOTE ZI-9/SMOTE
7 107211 1 1 1 1	ND: Reddish brown to pale olive, v dium, trace silt, well sorted, suban	1 4 • • • 1	Hand Auger
7 (3~7)	ND: Pale yellow brown, fine to med orly sorted, moist.	dium, trace clay,	2,3,3,5
7 (10-12-1 - 120/24) 20 1	AY: Light brown, mottled very pale nd, dry.	e orange, no fine	CL 8,20,42,42
15— - (15-17') 22/24 22 SA	A.		CL 9,12,15,16
20—			
25—			
30—			
35—			
40—	PAGE 1 of 299		NMENTAL SERVICES, INC.

				NG FIELD	LOG of	WELL: N/A		BOR	ING NO. WHF-30-SE	3-1
CLIEN	IT: SOUTHNAVE	ACENGO	ОМ					PROJ	ECT NO: RI PHASE	
CONTI	RACTOR: Groun	dwater F	rotec	tion Inc.		DATE STARTED: 12	2/06/92		COMPLTD: 12/08.	/92
METH	OD: HSA			CASE SIZE: N/A		SCREEN INT.: N/A	1	PROT	ECTION LEVEL: D	
TOC E	LEV.: N/A FT.			MONITOR INST.: OVA		TOT OPTH: 122FT.		DPTH	TO T N/A FT.	
LOGGE	OGGED BY: S. Consalvi WELL DEVELOPMENT DATE: N/A					SITE	30 - Southfield Ha	ngar		
DEPTH FT.	LABORATORY W SAMPLE ID. S	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			8	SANDY SILT: Reddish brow	n netrol	eum odor	1//	ML	POSTHOLE	
1	(2-4)	19/24	.2	SILTY CLAY: Greyish red, be fill.				CL	2,2,2,8	
5—	(5-7')	20/24	2	SAA, moderate red brown	moderate red brown mottling.				3,2,2,3	
10	(10-12')	/24	30	SAND: Light brown to pale orange pink stripes, fine, s				SP	6,6,8,10	
15	(15–17')	18/24	16	SAND: Moderate red to pa pink, strong musty odor.	ile yellow	orange to grayish		SP	8,13,16,24	
20— 20—		16/24	22	SAND: Moderate red to gr odor, upgraded of protect				SP	8,10,12,16	
25— - -		18/24	2	SAND: Pale yellow orange, striping, fine.	very pal	e yellow orange		SP	14,11,9,11	
30 		16/24	6	SAA, color change to very orange streaking.	y pale ye	llow orange, yellow		SP .	10,12,14,12	
35— -	(35–37')	14/24	- -	SAA, color change last 4"	white.			SP	12,20,24,26	
40						•		\ SP		

TITLE: NAVAL AIR STATION WHITING	FIELD LOG	of WELL: N/A	BORING NO. WHF-30-SB-1	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 12/06/92	COMPLTD: 12/08/92	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ♥ N/A FT.	
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/A		SITE: 30 - Southfield Hangar	
CE THE THE SAMPLE SAMPLE SAMPLE COVERY HEADSPACE (PPID)	SOIL/ROCK DESCRIF AND COMMENTS Continued from P	THO SYM	SOIL CLASS TO SMOTH	
	AA, pink to pale yellowish orange		SP 29,12,6,6	
45————————————————————————————————————	AYEY SAND: Pink, moderate red	mottling.	10,9,7,9	
50————————————————————————————————————	AND: Pale pinkish white, fine.		SC 8,8,6,8	
55————————————————————————————————————	AND: Greyish pink, fine.		SP 19,30,36,28	
60-62) 20/24 0 54	AA.		SP 16,22,26,16	
65—	AA, white, moderate red stripes	in first 4".	SP 16,18,21,22	
70— 16/24 5 SA	AA.		SP 14,18,25,26	
75— ———————————————————————————————————	AA.		SP 14,18,25,46	
80—	PAGE 2 of 3	BOSBOI ABB ENVIF	SP RONMENTAL SERVICES, INC.	

ITLE: NAVAL AIR STATION WHITING	FIELD LOG of	WELL: N/A	BOR	RING NO. WHF-30-SB-1
LIENT: SOUTHNAVFACENGCOM		p-1117-	PRO	JECT NO: RI PHASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 12/06/	92	COMPLTD: 12/08/92
4ETHOD: HSA CASE SIZE: N/A SCREEN INT.: N/A PROTECTION I			FECTION LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT OPTH: 122FT.	DPTH	I TO Ţ N/A FT.
OGGED BY: S. Consalví	WELL DEVELOPMENT DATE: N/	Α	SITE	: 30 - Southfield Hangar
RECOVERY (PDIII)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	IHOI.	SOIL CLASS	MELL DATA
	A, trace black grains.		SP	27,24,27,24
7 16/24 10 SA	Α.		SP	14,18,29,24
	ND: Dark red to yellow orange, fi ace clay, moist.	ne to medium,	SP	13,15,19,22
- 18/24 O SA	ND: White to yellow orange, fine t	o medium.	SP	13,17,14,16
10/24 1.2 SA	Α.		SP	29,13,13,12
	ND: Very pale orange to light bro e moderate red clay nodule.	own striped, fine,	SP	
	A, greyish orange pink, very thin ed with black grains.	lenses of sand	SP	
	A, very light grey, trace black spist.	pecs throughout,	SP	
,	PAGE 3 of 30		ML	TAL SERVICES, INC.

TLE: NAVAL AIR STATION WHITING	LO	G of WELL: N/A		BOR	ING NO. WHF-30-S	:B-1	
IENT: SOUTHNAVFACENGCOM				PRO	JECT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED:	12/06/92		COMPLTD: 12/08	3/92	
THOD: HSA	CASE SIZE: N/A	SCREEN INT.: N	I/A	PROT	PROTECTION LEVEL: D DPTH TO \$ N/A FT. SITE: 30 - Southfield Hangar		
OC ELEY: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 122F1	Г.	DPTH			
OGGED BY: S. Consalvi	WELL DEVELOPMENT DATE	: N/A		SITE			
FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESC AND COMMEN Continued from	ITS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
] CL	AYEY SILT: dark yellow orangetling and streaking, dry.			ML			
5					÷		
)—————————————————————————————————————					1.		
5							
5							
5—-							

ITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-30-SB-02
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/04/93	COMPLTD: 01/04/93
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
OC ELEV.: N/A FT:	MONITOR INST.: OVA	TOT DPTH: 22FT.	DPTH TO \$ N/A FT.
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	Α	SITE: 30 - Southfield Hangar
SAMPLE SAMPLE GOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	2 LITHOLOGIC SYMBOL	SOIL CLASS RACO ZI ZI WELL DATA
7 (U-2) 30 su	ND: Moderate reddish brown, med brounded, with litho change at 6" llow brown, trace clay, petroleum	to SAND: fine,	Hand Auger
	ND: Light brown, fine to medium, t bangular.	trace clay,	2,2,2,1
	ND: Light brown, fine to medium, s	subrounded, well	5,8,9,8
15————————————————————————————————————	AA.	• • •	7,13,22,27
20— - (20-22)	AA.	• • •	-,22,42,45
25—			
30—			
35—			
40—	PAGE 1 of 30	DSB02 ABB ENVIR	

AA Ü Ğ	SCREEN INT	LITHOLOGIC SYMBOL	PROTEC	CT NO: RI PHASE COMPLTD: 01/04 CTION LEVEL: D O V N/A FT. O - Southfield Ha BLOWS/6-IN Hand Auger	4/93
CASE SIZE: N/A MONITOR INST.: WELL DEVELOPME SOIL/R AN 40 SAND: Light brown, ve well graded.	SCREEN INT OVA TOT DPTH: 1 ENT DATE: N/A COCK DESCRIPTION ND COMMENTS	: N/A ZET. SYMBOL SYMBOL	SOIL CLASS	CTION LEVEL: D O \$ N/A FT. O - Southfield Ha BLOWS/6-IN	angar
MONITOR INST.: WELL DEVELOPME WELL DEVELOPME SOIL/R AN SAND: Light brown, ve well graded.	OVA TOT DPTH: 1 ENT DATE: N/A ROCK DESCRIPTION ND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	O Ţ N/A FT. O − Southfield Ha BLOWS/6-IN	
WELL DEVELOPME SOIL/R SOIL/R AN SAND: Light brown, ve well graded.	ENT DATE: N/A OCK DESCRIPTION ND COMMENTS	LITHOLOGIC	SOIL CLASS	0 - Southfield Ha	
SAND: Light brown, ve well graded.	OCK DESCRIPTION ND COMMENTS	[]	SOIL CLASS	BLOWS/6-IN	
40 SAND: Light brown, ve well graded.	ND COMMENTS	[]			WELL DATA
well graded.	ry fine to medium, trace silt		SP	Hand Auger	
4 0 SAA.		1 1		· ·	
7			SP	4,3,5,8	
SAND: Light brown, fin graded, moist.	ne to medium, subrounded, po	porty	SW	4,8,7,7	
SAND: Light brown, me subrounded, moist.	edium to coarse, poorly grad	led,	SW	7,10,15,19	
	graded, moist. SAND: Light brown, me subrounded, moist.	graded, moist. SAND: Light brown, medium to coarse, poorly grad subrounded, moist.	SAND: Light brown, medium to coarse, poorly graded, subrounded, moist.	SAND: Light brown, fine to medium, subrounded, poorly graded, moist. SAND: Light brown, medium to coarse, poorly graded, subrounded moist.	SAND: Light brown, fine to medium, subrounded, poorly graded, moist. O SAND: Light brown, medium to coarse, poorly graded, 7,10,15,19

	AIR STA				LOG of	WELL: N/A		BOR:	ING NO. WHF-30-SB-4
LIENT: SOU	THNAVFA	CENGO	OM					PRO	JECT NO: RI PHASE IIA
ONTRACTOR	: Groundw	ater P	rotec	tion Inc.		DATE STARTED: 0	/04/93		COMPLTD: 01/04/93
ETHOD: HSA				CASE SIZE: N/A		SCREEN INT.: N/A		PROT	ECTION LEVEL: 0
OC ELEV.; N/A FT. MONITOR INST.; OVA TOT DPTH; 7FT.					DPTH	TO \$ N/A FT.			
OGGED BY:	G. Walker			WELL DEVELOPMENT	DATE: N/	Α		SITE	30 - Southfield Hangar
LABORA SAMPLE	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA
- (0-2			82	SAND: Pale yellowish brow clay, petroleum odor.	n, fine to	medium, trace		SC	Hand Auger
5— - (5-7'		24/24	200	SAND: Light brown, fine to subrounded, well graded, at 6.5' to SAND: reddish to clay, non-plastic.	petroleum	odor,litho change		SC	1,1,2,2
0-				NOTE: AUGER REFUSAL A LOCATION WAS MOVED 1.5 FUTHER SOIL DESCRIPTI SOIL BORING WHF-30-SE	FT. EAS ONS ARE	T OF THE TANK.			
0—									
55									
00-									
)5— - -									

ITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORI	ING NO. WHF-30-SB-4 A
LIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/05/9	3	COMPLTD: 01/05/93
IETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTI	ECTION LEVEL: D
OC ELEV.: N/A FT,	MONITOR INST.: OVA	TOT DPTH: 27FT.	DPTH	TO \$ N/A FT.
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	A	SITE:	30 - Southfield Hangar
DEFTH CIT THE SAMPLE SAMPLE SAMPLE FECOVERY (PPM)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC	SOIL CLASS	MELL DATA
- OF	TE: BORING LOCATION WAS MOVE THE TANK DUE TO AUGER REFU LOCATION WHF-30-SB-04.	10 0.	SW	Rig Auger
	ND: Moderate reddish brown, med orly graded, sub- rounded.	lium to coarse,	•	Rig Auger
10-12') 24/24 10 SA	Δ.	• •	•	6,12,12,15
7 113-1/ 1 - 124/241 40 /	ND: Greyish orange, fine to coars sty odor, dry.	se, subrounded,	SP	7,17,24,30
20————————————————————————————————————	A, no odor.		SP	15,22,25,30
	ND: Greyish orange pink, coarse, odor.	subrounded, dry,	SP	7,17,15,17
30				·
35—				
40—		ı		ı

TITLE: NAVAL AIR STATION WHIT	TING FIELD LOG of	WELL: N/A	BORING NO. WHF-30-SB-5
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protei	ection Inc.	DATE STARTED: 01/05/93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 17FT.	DPTH TO ♀ N/A FT.
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A	4	SITE: 30 - Southfield Hangar
DEP TH FT. SAMPLE SAMPLE SAMPLE HEADSPACE (PDB)	SOIL/ROCK DESCRIPTI	2 LITHOLOGIC SYMBOL	SOIL CLASS MELL DATA
- (0-2')	SAND: moderate brown, fine to media silt.	um, trace clay &	Hand Auger
5——————————————————————————————————————	SAND: Moderate red, very fine to me moist.	edium, trace clay,	SW 3,4,6,9
10 4/24 2.5	SAND: Moderate red, very fine to fir silt, moist.	ne, trace clay &	SW 5,10,14,14
15-17) 23/24 0	SAA.		SW 10,15,16,18
20—			
25—			
30—			
35—			
40	PAGE 1 of 30	SB05 ABB ENVIRO	NMENTAL SERVICES, INC.

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-30-SB-6	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/05/93	COMPLTD: 01/05/93	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV.: N/A FT.	C ELEV.: N/A FT. MONITOR INST.: OVA TOT DPTH: 17FT.			
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	A	SITE: 30 - Southfield Hangar	
DEPTH FT. SAMPLE SAMPLE COVERY (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS POSTING ZI WELL DATA	
	ND: Moderate brown, fine to medi , well graded.	um, trace clay &	SC Hand Auger	
	ND: Moderate red, very fine to m Il graded, moist.	edium, trace clay,	SC 3,3,4,4	
	ND: Moderate red, very fine to fi , dry.	ne, trace clay &	SC 4,8,7,7	
15 -	Α.		SC 5,15,17,14	
20—				
25—				
30—				
35—				
		·		
40	PAGE 1 of 30	 SB06	 DNMENTAL SERVICES, INC.	

ITLE: NAVAL AIR STATION WHITING F	LOG of	WELL: N/A	BORI	NG NO. WHF-30-SB-7
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 01/05/	93	COMPLTD: 01/05/93
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTE	ECTION LEVEL: D
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH	TO \$ N/A FT.
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A	1	SITE:	30 - Southfield Hangar
SANPLE SANPLE SANPLE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	LITHOLOGIC	SOIL CLASS	MELL DATA
	ID: Light brown, very fine to fine, graded, moist.	trace clay & silt,	SC	Hand Auger
	ID: Moderate reddish brown, very ce clay, well graded, moist.	fine to medium,	- sc	3,6,7,7
10-12')	, ,		_ sc	4,5,7,9
15				
20—				
25				
30				
35—				
40	PAGE 1 of 30			TAL SERVICES, INC.

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING NO. WHF-32-SB-01
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/09/93	COMPLTD: 01/09/93
METHOD: HSA	CASE SIZE: N/A SCREEN INT.: N/A		PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 52FT.	DPTH TO ¥ N/A FT.
OGGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N/	Α	SITE: 32 - Northfield Hangar
DEPTH FT. GI BANDARS SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	SYMBOL	SOIL CLASS ON O
- (1-2') 0 SA	ND: Brown, fine, silt.		SP Hand Auger
	AYEY SAND: Red to brown, clay rist.	nottling, slighty	SC 3,12,18,22
	AYEY SILT: Red to pink, grey mo nd.	ttling, trace	7,17,18,27
15— - (15-17')	Α.		ML 6,11,16,16
20 - (20-22) 12/24 10 54	ND: Reddish pink, very fine to fin	e, trace tan silt.	7,10,7,10
25— - - - - - - - - - - - - - - - - - - -	ND: Tan, medium, trace silt.		SP 4,4,5,10
30————————————————————————————————————	AA .		SP
35— (35–37) 22/24 22 S	AA, white to pink, pebbles.		5,9,13,18
40—	PAGE 1 of 32		SP ONMENTAL SERVICES, INC.

LOG of WELL: N/A		BORING NO. WHF-32-SB-01				
IENT: SOUTHNAVFACENGCOM	•			PROJ	ECT NO: RI PHASE	
NTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/0	9/93	COMPLTD: 01/09/93		9/93
THOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A		PROTE	CTION LEVEL: D	
C ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 52FT.		DPTH	TO ¥ N/A FT.	
GGED BY: D. Lonergan	WELL DEVELOPMENT DATE: N	/A		SITE:	32 - Northfield Ha	engar
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIF AND COMMENTS Continued from P	AGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
SAA	A, some pebbles, dry.			SP		,
7/24 SAA	A, increasing coarse material.			SP		
- (50-52°)	ND: White to pink, fine, well sort	ed.		SP	11,15,23,30	
			To be a second			

ITLE: NAVAL AIR STATION WHITING I	LOG o	f WELL: N/A	BORING	3 NO. WHF - 32-SE	3-2
LIENT: SOUTHNAVFACENGCOM			PROJEC	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/09/9	3	COMPLTD: 01/09	/93
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTEC	TION LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 12FT.	DPTH TO	O Ţ N/A FT.	
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N.	/A	SITE: 3	2 - Northfield Ha	angar
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS	LITHO	SOIL CLASS	BLOWS/6-IN	WELL DATA
- (0-2') 0 SAI moi	ND: Moderate brown, finek to me st.	edium, trace silt.	SM	Hand Auger	
5— (5-7') 18/24 0 SA	A, dark yellowish orange.		SM	2,3,3,3	
-	A, 1/2" lens of angular gravel. ND: Very fine to fine, trace clay	v, well graded, dry.	SM SC	4,7,9,11 7,12,20,27	
15—					
20—					
25—					
30—					
35—					
40—					

TITLE: NAVAL AIR STATION WHITING F	LOG of	WELL: N/A	В	ORING NO. WHF-32-SB-3		
LIENT: SOUTHNAVFACENGCOM			Pf	ROJECT NO: RI PHASE IIA		
CONTRACTOR: Groundwater Protection 1	nc.	DATE STARTED: 01/09	9/93	3 COMPLTO : 01/10/93		
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PR	OTECTION LEVEL: D		
TOC ELEV:: N/A FT.	MONITOR INST.: 0VA	TOT DPTH: 32FT.	OP	TH TO \$ N/A FT.		
LOGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	A	SI	TE: 32 - Northfield Hangar		
DEPTH FT. SAMPLE SAMPLE SAMPLE FECOVERY (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	201	SYMBOL SOIL CLASS	MELL DATA		
7 10-/11 1 100	D: Moderate brown, fine to medided, petroleum odor, moist.	um, poorly	• SW	Hand Auger		
5— (5-7')	ID: Pale yellow orange, fine to mo st.	edium, trace silt,	SM	2,2,2,2		
10 - (10-12') 188 SAN mois	ID: Pale yellow green, very fine t st.	to fine, trace silt,	y// SM	3,6,8,11		
	Y: Moderate red orange, mottledinge, very fine to fine sand, mois		CL	3,3,6,8		
	ND: Moderate red orange, fine to moist, musty odor.	o medium, trace	sc	6,8,10,14		
	ND: Very pale orange, medium to orly sorted, dry.	coarse, trace silt,	SN	3,5,5,7		
30 - (30-32) 18/24 0 SA	Α,		Sh	4,4,6,6		
35————————————————————————————————————	A.	/. /.	, , si	5,5,5,9		
40—						

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORIN	IG NO. WHF-32-SE	3-04
LIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/10/93	COMPLTD: 01/10/93		
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D		
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 47FT.	DPTH T	10 ¥ N/A FT.	
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	Δ	SITE: 3	32 – Northfield Ha	ngar
SAMPLE SAMPLE SAMPLE TO SAMPLE TO SAMPLE TO SAMPLE TO SAMPLE SAMP	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	AND: Yellow orange, fine to medium pist.	, poorly graded,	SP	Hand Auger	
	AND: Light brown, fine, trace clay, pist.	well graded,	SC	3,6,7,8	
06/24 0 SA	AA, grade very fine to fine.		- sc	5,6,8,8	
15— - (15–17') 20/24 29 SA	AA, mottled red brown after 10".		- SC	7,6,10,10	
	op 4" same as above ,litho change d orange, fine to medium, poorly g	1. " .		4,6,7,9	
	AND: Very pale orange, medium to aded, dry.	coarse, poorly	• SW	6,7,8,9	
0 -	AA.	• •	• SW	3,3,4,6	
(35-37') 16/24 3 S	AA .		, ,	4,5,5,7	
0 - 18/24 0 S	AA .	. • • • •	• SW	7,10,10,9	
15— (45-471) 18/24 0 S	AA.	. •	• SW	4,6,6,9	

IENT: SOUTHNAVFACENGCOM		1	PROJECT NO: RI PHASE I	
NTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/10/93	COMPLTD: 01/10/9	
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
DC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 47FT.	DPTH TO ₹ N/A FT.	
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/	AND THE RESERVE TO THE PARTY OF	SITE: 32 - Northfield Han	gar
F T. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO SY X	SOIL CLASS BLOM2/6-IN	WELL DATA
18/24			SW	
91—				

TITLE: NAVAL AIR	STATION W	HITING	3 FIELD	LOG of	WELL: N/A		BORING NO. WHF-32-SB-05		
CLIENT: SOUTHNA	VFACENGCO	М .					PROJECT NO: RI PHASE IIA		
CONTRACTOR: Gro	undwater Pro	otectio	n Inc.		DATE STARTED:	01/19/93		COMPLTD: 01/21	/93
METHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N/	A	PROTE	ECTION LEVEL: B	С
TOC ELEV: N/A F	Γ:		MONITOR INST.: OVA		TOT DPTH: 110FT.		DPTH	TO ¥ 100 FT.	
LOGGED BY: R. Ne			WELL DEVELOPMENT D	ATE: N/	Α		SITE:	32 - Northfield Ha	ngar
L LABORATORY &	SAMPLE RECOVERY HEADSPACE	(wdd)	SOIL/ROCK D AND COM		ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
- (1-2')		0 s	AND: Dark brown, moist, sc	ome silty	clay.		SC	Hand Auger	
5 (5-7')	20/24		AND: Light brown, fine, tra oist to wet.	ce clay,	poorly graded,		SC	1,1,1,1	
10-12')	8/24	₉₅ s	AA, red soft clay.				SC	2,3,4,4	
15	1/24	95 m	AND: Light brown to pink coist.	lay, low	plasticity, soft,		SC	7,4,4,6	
-	6/24	7 S	AA.					6,6,7,9	
20-22')	24/24		AND: Reddish brown, fine, loist.	medium s	stiff, slightly		SC	7,9,9,10	
25—	20/24		IAND: Alternating bands of lightly moist, subrounded, p				SP	3,5,4,4	
30—	20/24	60 S	SAA.			7	SP	5,5,6,6	
35—	12/24		IAND: Fine, trace coarse & lightly moist.	i silt, pod	orly graded and		SP	5,9,6,11	

IITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A		HF-32-SB-05		
LIENT: SOUTHNAVFACENGCOM				RI PHASE IIA		
ONTRACTOR: Groundwater Protection		DATE STARTED: 01/19/93				
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: B & C			
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ♀ 100			
OGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/A	\	SITE: 32 - No	rthfield Hangar		
RECOVERY (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	THO	SOIL CLASS	WELL DATA		
20/24 50 SA	ND: White, fine, poorly graded, slig	ghtly moist.	SP 10,7	7.8,10		
45— - (45-47)	A, trace silt & coarse sand.		SP 12,	9,9,8		
	ND: White, fine, trace coarse, pod prounded, slightly moist.	rly graded,	SP Pu	shed		
55— 20/24 60 SA	A, pink silty sand at 56.5 ft, no c	parse sand.	SP Pu	shed		
	ND: White, fine, poorly graded, suist.	brounded, slightly	SP 12,14	1,20,28		
18/24 6 SA	A, trace silt at 66 ft.		SP 5,9	9,14,16		
	ND: White, medium, poorly graded, ghtly moist, subangular.	trace coarse,	SP 5,8	3,12,14		
	ND: Tan, fine to medium, trace co aded, trace silt.	arse, poorly	SP 6,	6,7,21		
80—	PAGE 2 of 325		SP DOMENTAL SE			

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: N/A	BORING	6 NO. WHF-32-SB	-05	
CLIENT: SOUTHNAVFACENGCOM			PROJEC	T NO: RI PHASE	IIA.	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/19/93		COMPLTD: 01/21/	93	
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTEC	TION LEVEL: B &	С	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ₹ 100 FT.			
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE: N/	A	SITE: 32	2 - Northfield Har	ngar	
DEPTH THE SAMPLE SAMPLE SAMPLE GDM)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS	BLOWS/6-IN	WELL DATA	
SA	ND: Tan, medium, trace coarse, po pangular.		SP	7,11,14,14		
	ND: White to yellowish orange bar ce silt, poorly graded, slightly mo		SP	5,7,9,9		
	ND: White, very fine, poorly grade prounded.	ed, slightly moist,	SP	5,7,8,9	·	
95	A, greyish white.		SP	5,6,10,11		
7 16/24 1500 SA	ND: Greyish white, fine to medium, prounded, saturated.	poorly graded,	SP	6,9,14,17		
24/24 350 SA	A, trace silt.		SP	2,1,3,12		
10 -	A.		SP	-,-,-,		
15—						
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TILE: NAVAL AIR STATION WHITING	LOG of	WÉLL: N/A		BORII	NG NO. WHF-32-SB	1-06
CLIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 01/1	D: 01/11/93 COMPLTD: 01/11/93			
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	/A PROTECTION LEVEL: D			
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 52FT.	OT OPTH: 52FT. OPTH TO \$			
OGGED BY: G. Walker	WELL DEVELOPMENT DATE: N/A			SITE:	32 - Northfield Ha	ngar
DEPTH DEPTH SAMPLE SAMPLE SAMPLE (PDIII)	SOIL/ROCK DESCRIPTI AND COMMENTS	ои	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND: Greyish red, fine to medium, p ist, petroleum stains.	•		SW	Hand Auger	
	ND: Pale yellowish brown, fine to morely sorted, moist.	nedium, trace silt,		SM	3,2,4,5	
7 110-12 1 1 14/44 1 12 1	ND: Yellow orange, very fine to fil ist.	ne, poorly sorted,		SC	6,9,9,10	
0/24 NO	RECOVERY IN THE 15-17 FT SPO	ON.			4,6,7,9	
	ND: Very pale orange, very fine t aded, dry.	o fine, poorly		SW	6,14,14,17	
	.ND: Very pale orange, fine to med aded, dry.	dium, poorly		SW	3,2,5,5	
(30-32) 17/24 7 SA	۸.			SW	3,4,5,5	
35— - 16/24 17 S.	۸.			SW	4,4,6,5	
40	PAGE 1 of 325	SB06 ABB 5	VIPO	SW	TAL SERVICES	TNC

TITLE: NAVAL AIR STATION	WHITING F	TELD	LOG of	WELL: N/A		·	BOR	ING NO. WHF-32-SE	3-06	
CLIENT: SOUTHNAVFACENGO	ОМ			·			PRO	JECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Pr	rotection 1	inc.		DATE START	ED: 01/1	1/93		COMPLTD: 01/11/9	93	
METHOD: HSA		CASE SIZE: N/A		SCREEN INT	.: N/A		PROT	ECTION LEVEL: D		
TOC ELEV: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 5	2FT.		DPTH	TO ₹ N/A FT.		
LOGGED BY: G. Walker		WELL DEVELOPMENT	DATE: N/	Α			SITE	: 32 - Northfield Ha	ngar	
DEPTH T. T. SAMPLE SAMPLE SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS			LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
18/24	1.5 SAA	•			•	• •	SW	7,6,9,11		
45—(45–47) 20/24	O SAA	, 3 mm gravel layer.					SW	14,16,17,19		
50	O SAA	•			•	• •	SW	,,		
55—										
60-										
65—										
					1					
70—										
75—						***************************************				
80_		PACE	2.of 325	SBOR A	BR EN	VIPO	MEN'	TAL SERVICES.	INC	

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				LUG Of	WELL: N/A			ING NO. WHF-32-SI	
LIENT: SOUTHNA			in To		DATE OTABLE	21/20/03	PROJ	COMPLETE: 01/01/	
ONTRACTOR: Gro	undwater	rotect		·····	DATE STARTED:				
ETHOD: HSA			CASE SIZE: N/A	· · · · · · · · · · · · · · · · · · ·	SCREEN INT.: N/		PROTECTION LEVEL: B & C		
OC ELEV.: N/A F			MONITOR INST.: OVA		TOT DPTH: 32FT.		DPTH TO \$ N/A FT.		
OGGED BY: B. C	olby		WELL DEVELOPMENT	DATE: N/	Α		SITE:	32 - Northfield Ha	ngar
LABORATORY SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
-		5	-					Hand Auger	
-									
]									
5—							sc		
]	24/24	70	CLAYEY SAND: Stained oli	ve, fine, t	nigh odor.			2,2,2,3	
4									
0	12/24	2800	SILTY CLAY: Orange and g	grey, som	e olive streaks,		CL	6,7,12,24	
]	12/24	2800	medium plasticity, strong s					0,7,12,24	
_									
15—	24/24	500	SAA.				CL	11,12,9,18	
-	 	-	OAA.					i	
1									
0-							CL		
4	10/24	2000	SAA.				CL	4,4,5,7	
-		1							
1									
:5—		4					SP		
	/24	700	SAND: Grey, medium, well g	građed.			-	11,14,19,23	
1		1							
4									
30—						72.72	SP		
(30-32)	20/24	200	SAA.					3,9,12,6	
-									
35—									
]			,						
4									
₄₀ _					•				

TITLE: NAVAL AIR S	TATION	WHITI	NG FIELD	LOG of	WELL: N/A		BOR	ING NO. WHF-32-S	B-08
CLIENT: SOUTHNAVF	ACENGO	ОМ					PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Ground	dwater P	rotect	tion Inc.		DATE STARTED:	01/21/93		COMPLTD: 01/21	/93
METHOD: Hand Auger			CASE SIZE: N/A		SCREEN INT.: N	/A	PROT	ECTION LEVEL: D	
TOC ELEV.: N/A FT.			MONITOR INST.: OVA		TOT DPTH: 15FT.		DPTH	TO ¥ N/A FT.	
LOGGED BY: B. Colby	y		WELL DEVELOPMENT	WELL DEVELOPMENT DATE: N/A			SITE	32 - Northfield H	angar
L LABORATORY J. SAMPLE ID. W. S.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-		0	CLAYEY SAND: Reddish br	rown to lig	ht brown, fine.		SC	Hand Auger	
5	Full	0	SILTY SAND: Yellowish bro	own , fine,	very moist.		SM	Hand Auger	
10—]	Full	3	CLAYEY SAND: SAA, some	purple cl	ay lenses.		sc	Hand Auger	
15—(13–15')	Fuli	0	SANDY CLAY: Orange to p	ourple, med	dium plasticity.		CL	Hand Auger	
		- - -							
20—									
25—									
-									
30-							. :		
35—									
40—]					•	-			
			PAGE	1 of 32	SB08 ABB	ENVIRO	NMEN	TAL SERVICES	. INC.

				LOG of	WELL: N/A		BORI	NG NO. WHF-33-SI	B-1
LIENT: SOUTHNAVE	CENGO	ЮМ					PROJ	ECT NO: RI PHASE	IIA .
ONTRACTOR: Ground	water P	rotect	on Inc.		DATE STARTED: 12	2/03/92	COMPLTD: 12/03/92		
ETHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N/	4	PROTECTION LEVEL: D		
OC ELEV.: N/A FT.			MONITOR INST.: OVA		TOT OPTH: 27FT.		DPTH TO \$ N/A FT.		
OGGED BY: S. Consa	alvi		WELL DEVELOPMENT	DATE: N/	A		SITE:	33 - Midfield Hang	gar
L' LABORATORY UNITED LA SAMPLE ID. W	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		1 1	SANDY SILT: Reddish brow	vn, modera	ate reddish brown		ML	POSTHOLE	
5— (3–5')	22/24		SILTY SAND: Moderate re- graded.	ddish brov	wn, fine, poorly		SM	3,3,3,4	
	20/24		SANDY CLAY: Moderate re graded, slightly moist.	ddish bro	wn, fine, poorly		CL	3,3,5,4	
- (10-12')	20/24		CLAYEY SAND: Moderate r graded.	reddish br	own, fine, poorly		sc	3,3,3,3	
15—	2/24	0	SAA.				sc	5,6,6,7	
20	4/24	0	SAA.					4,5,7,7	
25—- (25-27')	22/24	0	SILTY SAND: Moderate re pale orange mottling (trad		nge, fine, very		SM	7,7,9,11	
30—									

TITLE: NAVAL AIR S	TATION	WHITI	NG FIELD	LOG of	WELL: N/A	· 	BORIN	IG NO. WHF-33-SE	-2
CLIENT: SOUTHNAV	FACENGO	СОМ					PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groun	idwater f	rotec	tion Inc.		DATE STARTED:	12/01/92	COMPLTD: 12/03/92		
METHOD: HSA			CASE SIZE: N/A		SCREEN INT.: N	/A ·	PROTECTION LEVEL: D		
TOC ELEV.: N/A FT.			MONITOR INST.: OVA	<u> </u>	TOT DPTH: 122FT		DPTH 1	ro ¥ 120 FT.	
OGGED BY: S. Con	salvi		WELL DEVELOPMENT	DATE: N/	A		SITE: 3	33 - Midfield Hang	er .
L LABORATORY L T	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-	-	0			. ,		SM	POSTHOLE	
(2-4')	12/24	0	SILTY SAND: Moderate re graded, black petroleum s		wn, fine, poorly			2,1,1,2	
5— (4-6')	17/24	900	SILTY SAND: Blackish red reddish brown mottling, sti					6,2,2,3	
10-12')	17/24	98	SAA, litho change at 10.5' sand.	to modera	ate red clayey		sc	9,6,6,5	
-									
15— - (15–17')	20/24	3.8	CLAYEY SAND: Moderate : 3".	red, slight	ly moist at top		SC	7,5,5,6	
0	20/24	0.5	SAA, fine, poorly graded.				SC	4,6,6,7	
5	20/24	22	SAA, litho change at 26.5 silty sand, very pale oran				SC	5,6,6,9	
0-	18/24	92	SAND: White, very fine to pesticide/musty odor.	fine, poor	ly graded,		SP	14,15,18,22	
15—							SP		
- (35-37°) -	22/24	2.0	SAND: White, fine, well gra	aded, dry,	subrounded.			22,24,26,29	
10—	, I		פאפר	1 of 33	SBOS ABB	ENIVERO	SP	AL SERVICES.	TNO

IENT: SOUTHNAVFACENGO	·nu		LOG of	WELL: N/A			NG NO. WHF-33-SE	
NTRACTOR: Groundwater F		Inc		DATE STARTED: 12	/01/02	PROJ	COMPLTD: 12/03	
THOD: HSA	TOTECTION	CASE SIZE: N/A		SCREEN INT.: N/A		PPOT	ECTION LEVEL: D	
				TOT DPTH: 122FT.				
GEED BY: S. Consalvi			IONITOR INST.: OVA TOT DPTH: 122FT. WELL DEVELOPMENT DATE: N/A				TO ¥ 120 FT. 33 - Midfield Hang	30
	441	WELL DEVELOPMENT	DATE. N				oo Manela Hang	
L LABORATORY SAMPLE TO SAM	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
14/24	12 SA	A.				SP	13,12,18,22	
16/24	2.5 SA	A, color change to gre	yish pink.			SP	7,9,13,18	
14/24		A, color change to gred derate orange pink.	yish orang	e pink over		SP	14,15,16,16	
18/24	< 1 pir	.A, moderate orange pir ok.	nk over gr	eyish orange		SP	8,11,13,21	
(60-62) 22/24		A, moderate orange ov arse, black vertical stri		ange pink,		SP	51,24,22,28	
14/24		ND: Greyish pink, fine t lor	o medium,	well graded, musty		SP	,,,	
14/24	22 54	AA, white, solvent odor.			74.74.74 74.74.74	SP	8,7,5,6	
(75-77') 22/24	1 1	AA, moderate red to gre ey clay layer.	eyish pink,	with a 2" purple		SP	8,12,15,14	
1				•				

TITLE: NAVAL AIR STATION WHITING	FIELD LOG of	WELL: N/A	BORING NO. WHF-33-SB-2	2
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE II	A
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 12/01/92	COMPLTD: 12/03/92	2
METHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
TOC ELEV:: N/A FT:	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO \$ 120 FT.	
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/	Α	SITE: 33 - Midfield Hangar	
DEPTH FT. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI	SOIL CLASS BI-9/SMO78	WELL DATA
SA	A, white to pale yellow, with a 2" er.		-,8,4,27	
i 1 187 1 1 1	ND: Moderate reddish orange to dium, poorly graded, dry, no odor	12 (12 (12 (12 (12 (12 (12 (12 (12 (12 (SP 10,12,20,27	
90 12/24 0 SA	A, very pale orange, grey yellow	striping.	SP 15,19,25,32	
95— (95-97') 24/24 0 SA	A, pale yellow orange to light red	1.	SP 23,32,42,	
00	A, white and yellow orange mixed		SP 25,25,28,	
	.A, greyish orange pink to pale ye greyish pink/moderate red soft c		SP,,	
	.ND: Red orange, fine, moist. CLA Iderate red. SAND: White, fine to		SP 36,47,41,46	
	AY: Moderate red to light grey, f Nd: White, fine, clay lenses.	ine to medium.	CL 24,31,38,40]
120	PAGE 3.of 33		SP DOMENTAL SERVICES, I	Ā

TLE: NAVAL AIR ST		 	LOG of WELL: N/A		BORI	NG NO. WHF-33- S	B-2
.IENT: SOUTHNAVE	ACENGCOM				PROJ	ECT NO: RI PHASE	IIA
NTRACTOR: Ground	water Protect	ion Inc.	DATE STA	RTED: 12/01/92		COMPLTD: 12/03	/92
ETHOD: HSA	-	CASE SIZE: N/A	SCREEN II	NT.: N/A	PROTE	ECTION LEVEL: B	
OC ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH	122FT.	DPTH	TO ¥ 120 FT.	
GGED BY: S. Cons	elvi	WELL DEVELOPMENT	DATE: N/A		SITE:	33 - Midfield Hang	gar
L' LABORATORY L'SAMPLE ID.	RECOVERY HEADSPACE (ppm)	AND C	DESCRIPTION OMMENTS from PAGE 3	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-(120-122)		SAND: Grey, fine, saturate			SP	32,39,48,82	
5							
						,	
1							
-							
5—							
5—							
0-							
5—		·					
1							

IIIL	E, NAVAL AI	.r >1	ATION	mmil.	ING FIELD	LOG of	WELL: N/A		BOR	ING NO. WHF-33-S	B-3
CLIE	NT: SOUTHN	AVF	CENGO	OM				-	PRO.	JECT NO: RI PHASE	IIA
CONT	RACTOR: Gr	ound	water f	rotec	tion Inc.		DATE STARTED): 12/01/92	COMPLTD: 12/01/92		
METH	OD: HSA				CASE SIZE: N/A		SCREEN INT.: N/A			ECTION LEVEL: D	
TOC	ELEV.: N/A I	т.			MONITOR INST.: FID		TOT DPTH: 22F	Т.	DPTH	TO ₹ N/A FT.	
LOGG	ED BY: S. (Consa	alvi		WELL DEVELOPMENT	DATE: N/	A		SITE:	33 - Midfield Hang]ar
DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-				0						POSTHOLE	
5—	(4-6')		12/24	0	SILTY SAND: Moderate regraded.	ddish bro	wn, poorly		SM	3,2,2,3	
10	(10-12')		14/24	0	SAA.				SM	4,4,3,4	
- 15 	(15–17')		16/24	0	SAA.				SM	4,6,5,5	
- 			12/24	0	SAA.				SM	4,5,5,6	
- - 25—											
• -											
30— - -									ļ		
- 35—										•	
-			-								
- -											
10-	, '	'	,	. '	PAGE			, ,	i	TAL SERVICES	

ITLE: NAVAL AIR STAT		·	LOG of	WELL: N/A		BORIN	NG NO. WHF-33-SE	3-4
LIENT: SOUTHNAVFAC	ENGCOM					PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwa	ter Protect	ion Inc.	<u>-</u>	DATE STARTED:	2/02/92	COMPLTD: 12/02/92		
ETHOD: HSA		CASE SIZE: N/A		SCREEN INT.: N/	'Α	PROTECTION LEVEL: D		
OC ELEV.: N/A FT.		MONITOR INST.: OVA	\	TOT DPTH: 24FT.		DPTH '	TO 🎗 N/A FT.	
OGGED BY: S. Consalv	i	WELL DEVELOPMENT	DATE: N/	Δ		SITE:	33 - Midfield Hang	ar
L LABORATORY L L LABORATORY L L SAMPLE ID. W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	CDESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-	0	SILTY SAND: Fine.				SM	POSTHOLE	
5- (3-5')	0/24 0	SILTY SAND: Moderate regraded.					2,2,2,3	
(5-7')	9/24 0	SAA, litho change at 6.5' reddish brown, fine, slight		AY: Moderate		CL	5,2,2,3	
10 -	4/24 0	SANDY CLAY: SAA.				CL	5,4,4,3	
15—		CH TV CAND Medicate	addish bus	un fina deu	7,7	SM		
(15-17')	4/24 0	SILTY SAND: Moderate r	eddish bro	wit, fine, dry.	1//		15,9,8,8	
20—	2/24 0	SAA.				SM	7,4,7,5	
	0 0	SAA.					7,5,5,5	
25—								
30—						,		
35—								
40_								

		WELL: N/A		BORING NO. WHF-33-SE	8-5		
LIENT: SOUTHNAVFACENGCOM			ı	PROJECT NO: RI PHASE	IIA		
ONTRACTOR: Groundwater Protectio	n Inc.	DATE STARTED: 12/0	6/92	COMPLTD: 12/06	92		
ETHOD: HSA	CASE SIZE: N/A	SCREEN INT.: N/A	PI	ROTECTION LEVEL: D			
OC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 22FT.	D	DPTH TO \$ FT.			
DGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: N/	A .	s	ITE: 33 - Midfield Hang	ar		
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	SYMBOL SYMBOL SYMBOL	BLOWS/6-IN	WELL DATA		
	ANDY SILT: Dusky yellowish brown range, fine, petroleum odor.	to dark yellowish	M	4,5,3,6			
5— (5-7') Z2/24 22 S	AA, silty clay, moderate red, no oc	dor.	M C				
0 (10-12') Z4/24 0 S	AA.		C	L 2,2,2,3			
5— - 12/24 0.6 S	AA.		C	6,6,8,10			
0 - (20-22) 14/24 0 S	ILTY SAND: Moderate red, fine.		, , , s	м -,-,			
5—		·					
0-							
5—							

APPENDIX C RI PHASE IIA MONITORING WELL LITHOLOGIC DESCRIPTIONS

TITLE: Naval Air Station Whiting Field	LOG of W	IELL: WHF-BKG-1	BORING	NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT	NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/8/93	C	COMPLTD: 5/8/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT .: 103-118 FT	PROTECT	ION LEVEL: D
TOC ELEV.: 195.67 FT.	MONITOR INST.: FID	TOT DPTH: 118FT.	DPTH TO	Ų 108.46 FT.
OGGED BY: T. Kauffman/G.K.	WELL DEVELOPMENT DATE:		SITE: Bad	ckground
DEPTH F1. F1. GIG SAMPLE SAMPLE RECOVERY (Ppm)	SOIL/ROCK DESCRIPTIO AND COMMENTS	Z LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA
- 1.2/2 pla	NDY CLAY (9") – dark yellow oran sticity,dry. SAND (9") – moderate e to medium, little silt, poorly grade	e reddish brown.	ŞP	2,4,8,20
	ND (10") – white, fine to medium, p ND – moderate reddish brown, littl		SP	3,8,13,22
- 1.5/2 gra	ND – yellowish grey, very fine to a ded, moderate dense, dry; botton ple, very loose.		SM	14,21,28,29
40			SP /	21,26,29,31

ITLE: Naval Air Station Whiting Field	L0G o	f WELL: WHF-BKG-1		BORING NO.		
IENT: SOUTHNAVFACENGCOM	1			PROJECT NO	: RI PHASE IIA	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/	8/93	COMP	PLTD: 5/8/93	
THOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 103-	-118 FT	PROTECTION	LEVEL: D	
DC ELEV.: 195.67 FT.	MONITOR INST.: FID	TOT DPTH: 118FT.		DPTH TO \$ 10	18.46 FT.	
OGGED BY: T. Kauffman/G.K.	WELL DEVELOPMENT DATE:			SITE: Backgr	ound	
FT. GI BANDER SAMPLE SAMPLE RECOVERY (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA		LITHOLOGIC SYMBOL	SOIL CLASS	WS/6-IN	WELL UATA
SA	ND - yellowish grey, very fine to aded, medium dense, dry.	fine, poorly		SP	,	
	ime as above, 2 " pale pink lense nd and silt.	, lense of coarse		SP 11,	12,13,19	
0 Sa	nme as above.			SP 8,	9,15,20	
5					, ,	
- 1.5/2 an	AYEY SAND (5") - banded yello d mod. reddish orange dry to mo ove (6"), pale yellow. Same as a ange. Same as above (8"), pale	oist. Same as above (3"), pale		SC 10,:	22,21,27	
1.5/2					p N N N	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-BKG-1	В	ORING NO.		
LIENT: SOUTHNAVFACENGCOM			P	ROJECT NO: RI PHASE	IΙΔ	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/8/	/93	COMPLTD: 5/8/93		
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 103-11	8 FT PR	PROTECTION LEVEL: D		
OC ELEV.: 195.67 FT.	MONITOR INST.: FID	MONITOR INST.: FID TOT DPTH: 118FT.		PTH TO ¥ 108.46 FT.		
OGGED BY: T. Kauffman/G.K.	WELL DEVELOPMENT DATE:		SI	TE: Background		
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	ion SE 2	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
- 2/2 ran	AYEY SAND to SANDY CLAY (in le ge from dark yellow orange, light I moderate reddish brown; wet.		sc/0	CL CL		
	ND - yellowish grey, very fine to ded, dense moist to wet.	fine, poorly	SP	23,34,44,53		
00 — 0 San	ne as above.		SP	26,46,70,74		
0 Sam	ne as above.		SP	10,25,24,40		
00 Sam	ne as above.		SP	13.44,41,42		
1 1 1 1 1 1	ND - yellow grey, fine to medium, ise, moist.	trace course,	SP	16,23,13,16		
0 Sam	ne as above, wet.		SP	10,15,13,16		
15—						

TITLE: Naval Air	Statio	on Whit	ing Fie	eia	LOG of	WELL: WHF-BKG-2	·	BORI	NG NO.	
CLIENT: SOUTHN	AVFA	CENGO	ОМ					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Gr	ound	vater F	rotect	ion Inc.		DATE STARTED: 4	1/27/93		COMPLTD: 4/27/	93
METHOD: HOLLOW	STE	M AUGI	ER	CASE SIZE: 2"		SCREEN INT.: 91	- 106'	PROTE	CTION LEVEL: D	
TOC ELEV.: 180.4	IIFT.			MONITOR INST.: FID		TOT DPTH: 106FT.		DPTH	TO ♀ 96.82 FT.	
OGGED BY: G.	Kanch	ibhatla	3	WELL DEVELOPMENT	DATE:		-	SITE:	Background	
L LABORATOR L SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		1.2/2	0	SILTY SAND – reddish bro	own, fine,	damp.		SM	3,4,3,2	
0		1.2/2	0	Same as above, deeper release.	eddish col	or, thin black silt		SM	6,9,11,12	
30		1.5/2	0	Same as above, some fine white fine medium sand the		m, thin lenses of		SM	8,5,5,7	
40—			0			·		\SM/SP/	11,12,9,11	

ITLE: Naval Air Station Whiting Field	LOG of W	IELL: WHF-BKG-2	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	E IIA	
ONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 4/27/93	COMPLTD: 4/2	COMPLTD: 4/27/93	
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2" S	SCREEN INT.: 91' - 106'	PROTECTION LEVEL: D		
OC ELEV.: 180.41 FT.	MONITOR INST.: FID T	TOT DPTH: 106FT.	DPTH TO ¥ 96.82 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: Background		
SAANDE TO SAANDE TO THE STANDERS TO THE STANDE	SOIL/ROCK DESCRIPTIO AND COMMENTS Continued from PAG	THO	SOIL CLASS AI-9/SMOTB	WELL DATA	
	e as above (3"). SAND – pale or white, fine, thin to minute lenses of trace to no silt.		SM/SP		
	e as above, off-white to pale rec ey silt, (51') pale red, trace sand		SP 11,11,13,14		
	D – off-white, fine, trace to no s ale red sand.	silt, minute lenses	SP 17,16,12,19	N_N_N_N_N_N_N_N_N_N_N_N_N_N_N	
	e as above (6"), pale yellow. Sa I, pale orange. Same as above (1		SP 19,19,17,21		
- t.5/2 oraș	e as above, layered pale yellow nge (5"), pale yellow (4"), pale of se silt.		SP 14,19,22,17		
80—			19,22,drop		

TLE: Naval Air Station Whiting Field	LOG of WELL: WHF-BKG-2		BORING	3 NO.	
ENT: SOUTHNAVFACENGCOM			PROJEC	CT NO: RI PHASE	IIA
NTRACTOR: Groundwater Protection Inc.	DATE STARTED: 4	DATE STARTED: 4/27/93			93
THOD: HOLLOW STEM AUGER CAS	SIZE: 2" SCREEN INT.: 91	- 106'	PROTEC	TION LEVEL: D	
C ELEV.: 180.41 FT. MON	TOR INST.: FID TOT DPTH: 106FT.	******	DPTH TO	O ♀ 96.82 FT.	
GGED BY: G. Kanchibhatla WEL	DEVELOPMENT DATE:		SITE: B	ackground	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Same as	above, layered pale yellow (10"), off-white thin lenses of yellow sand, moist.		SP		
	above, layered pale yellow (3"), off-white red (16")		SP	29,27,31,38	
0 Same as	above, pale red.		SP	17,19,32,48	
1.5/2 O Same as	above.		SP	17,28,31,43	
2/2 O Same as	above, oxidation staining at 101°.		SP	10,11,19,26	
				·	

TITLE: Naval Air Station Whitin	ig Field	LOG of WELL: WHF-BKG-3		BORI	NG NO.		
CLIENT: SOUTHNAVFACENGCO)M			PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Pro	otection Inc.	DATE STARTED: 4	/26/93	COMPLTD: 4/26/93			
METHOD: HOLLOW STEM AUGER	R CASE SIZE: 2"	SCREEN INT.: 64	' - 79'	PROTE	CTION LEVEL: D		
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 79FT.		DPTH	TO ♀ 72.90 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT	DATE:		SITE:	Background		
SAMPLE SA	71 14	DESCRIPTION MMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA	
10	O SANDY SILT - orange red yellow brown, slightly mois clay.		///	ML	5,12,8,11		
20 1.2/2	O Same as above (Top 4"). fine,interbedded very pale trace to no silt, slightly da	red and very pale orange,		ML/SP	8,8,8,9		
30—	O SAND - very pale red to g trace silt, slightly damp, tr			SP	5.8,8,12		
40—	0			SP /	12,13,18,16		

TITLE: Naval Air Station Whiting I	Field	LOG of WELL: WHF-BK	G-3	BORING NO.		-
CLIENT: SOUTHNAVFACENGCOM	WHAPPARIA TO THE TOTAL THE TOTAL TO AL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO TH			PROJECT NO: R	I PHASE IIA	
CONTRACTOR: Groundwater Prote	ection Inc.	DATE STARTE	D: 4/26/93	COMPLI	TD: 4/26/93	
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.:	64' - 79'	PROTECTION LE	VEL: D	
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 79F	- T.	DPTH TO ♀ 72.9	0 FT.	
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT	DATE:	-	SITE: Backgrou	nd	
DEPTH FT. FT. COLOLABORPT COLOLABORPT COLOLABORPT COLOLABORPT COLOLABORPT FEADSPACE FORM	SOIL/ROCK AND C	CDESCRIPTION COMMENTS From PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA	
1/2		e orange, fine, thin layers of e brown silt in the bottom	of [SP		
45— 50— 0.9/2	4".	purple (3"), light brown to		SP 10,16,1	19,28	
60	SANDY CLAY (4") - brow plastic, soft, moist. Same			CL/SP 8,18,2	3,20	
65—						
70 1.5/2	Same as above, reddish printerbedded, saturated	ourple and yellow orange		SP 8,9,	131	₽
75	SANDY CLAY - pale redd off-white, thin lense of y medium stiff, moiste.	iish purple interbedded wit ellow orange silt, plastic,	h	SC 5.6.9	9,12	
80 0				ML 2,3,	3,11	
	PAGE	2 of BKGMW3 AB	B ENVIRON	MENTAL SER	VICES, INC.	

TITLE: NAVAL AIR STA		G FIELD	LOG of	WELL: WHF-1-1S			NG NO. ECT NO: RI PHASE 1	II A
	ACTOR: Groundwater Protection Inc. DATE STARTED: 06/28/93					COMPLTD: 06/28		
METHOD: HSA				SCREEN INT.: 57-		PROTECTION LEVEL: D		
				TOT DPTH: 74FT.			TO ♀ 64.62 FT.	<u> </u>
OGGED BY: A. Cohen				101 01 11.1 14.1			1 - N.W. Disposal Ar	ea
E LABORATORY W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK		TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		SAND – orange-brown, ve graded.	ery fine to	o fine, well		SP	4,6,8,11	
10—	2.0/2.0	SAND - SAA, very pale o	range, tra	ice coarse.		SP	5,5,7,6	
15—	1 1 1	SAND – white, fine well g grains.	raded, fini	e black phosphatic		SP	7,6,8,7	
20—	1 1 1	SAND – pale moderate re SAA.	ed to oran	ge brown mottling,		SP	5,5,5,12	
25—	0	SAND - SAA.				SP	3,6,10,11	
30—		SAND - SAA, layers of p orange-brown.	oale moder	ate red to		SP	8,9,20,21	
35—	0	SAND – layers of orange tan, medium to coarse.	e brown, p	ale yellow, white &		SP	5,11,14,22	
40	2.0/2.0	SAND - fine to medium, orange-brown, pale yell				SP	15,17,21,30	

TITLE: NAVAL AIR STATION WHITING	S FIELD	LOG of	F WELL: WHF-1-1S		BORI	NG NO.	
LIENT: SOUTHNAVFACENGCOM					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection	n Inc.		DATE STARTED:	06/28/93		COMPLTD: 06/2	B/93
ETHOD: HSA	CASE SIZE: 2"		SCREEN INT.: 57	-72	PROTE	CTION LEVEL: D	
OC ELEY.: 143.55 FT.	MONITOR INST.: OVA		TOT DPTH: 74FT.		DPTH	TO ♀ 64.62 FT.	
OGGED BY: A. Cohen	WELL DEVELOPMENT	DATE:			SITE:	1 - N.W. Disposal A	rea
RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
2.0/2.0	Commission				SP		
	AND – pale yellow to wh lack phosphatic grains.	ite, fine, v	well graded, fine		SP	5,11,26,38	
	AND – white, fine, well g ottling.	raded, pa	le moderate red		SP	5,12,19,32	
0 55—	AND – white, fine to med	dium, well (graded, mottling.		SP	29,21,37,33	
0 50	SAND – fine to medium, wo	ell graded	1, striations, wet.		SP	14,18,17,21	
	SAND – pale moderate re pebbles, wet.	d, medium	to coarse, trace		SP	5,7,12,15	
70—	SAND - SAA, very pale m	oderate r	ed.		SP	6,8,13,17	
75—							
30—		•					

						WELL: WHF-1-2		BORING NO.			
LIENT: SOUTH	NAVFAC	ENGC	ОМ					PROJ	ECT NO: RI PHASE	IIA	
ONTRACTOR: G	iroundwa	ater P	rotec	ion Inc.		DATE STARTED:	02/20/93		COMPLTD: 02/21	/93	
ETHOD: HSA				CASE SIZE: 2"		SCREEN INT.: 60	75 FT	PROTE	CTION LEVEL: D		
OC ELEV.: 145.	68 FT.			MONITOR INST.: FID		TOT DPTH: 75FT.		DPTH	TO T FT.		
OGGED BY: L.	Foster			WELL DEVELOPMENT	DATE:			SITE:	1 – N.W. Disposal A	rea	
E : LABORATOR SAMPLE II	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5	7 2		0	SAND – brown to reddish moderately graded, loose,				SP	4,2,2,3		
10	7 2	24/24	0	SAA, light to reddish oran	ge.			SP	5,5,13,15		
15		24/24	0	SAND - orangish white, tr poorly graded, moist.	ace fines	and some medium,		SP	6,8,16,15		
20	7 :	24/24	0	SAA, 2" clay lens, dry.				SP	4,4,8,9		
25		20/24	0	SAND – orange and white trace coarse, moderately				SP	5,6,10,12	2 2 2 2 2 2	
30—		19/24	0	SAND - pale yellowish or fines, moderate to well gr				SP	17,15,12,19	4" 4" 4" 4"	
35		18/24	0	SAND - white, fine to me graded, loose, dry.	dium, trac	e coarse, poorly	V. V	SP	14,16,27,29		

TITLE: NAVAL AIR STATION WHITING	LIELD	of WELL: WHF-1-2		BORIN	IG NO.	
CLIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 0	2/20/93		COMPLTD: 02/21	/93
IETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 60	-75 FT	PROTE	CTION LEVEL: D	
FOC ELEV.: 145.68 FT.	MONITOR INST.: FID	TOT DPTH: 75FT.		DPTH 1	roş FT.	
OGGED BY: L. Foster	WELL DEVELOPMENT DATE:	-		SITE: 1	- N.W. Disposal A	rea
SAMPLE SAMPLE RECOVERY (ppm)	SOIL/ROCK DESCRI AND COMMENTS Continued from F	S	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	ND – pinkish yellow, fine to med derately graded, dry.			SP	14,15,22,22	
	ND – white, yellow, and pink, mo aded, loose, moist.	edium to coarse, well	• • •	SW	15,17,24,26	
7 1 1 10/24 1 0 1	ND – pink and white, medium, pose, 1" clay lense.	oorly graded, moist,		SP	18,13,16,19	
	ND – yellowish tan, meidum to d ff, well graded , moist.	coarse, some fines,	• • •	SW	5,8,13,17	
0 -	A, orange banding, firm.		• • •	SW	21,16,17,19	
24/24 O SA	A .		• • •	SW	17,19,14,16	
724/24 0 SA	A, light reddish brown, saturati	ed.	• • •	SW	9,2,4,3	
75— 24/24 1 SA	AA, bottom 4" fine sand, satura	ited.	• • •	SW	15,17,26,30	
80—						

TITLE: NAVAL AIR STATION WHITING I	LOG of W	IELL: WHF-1-3	BORING NO.				
LIENT: SOUTHNAVFACENGCOM			PROJECT NO); RI PHASE IIA			
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 06/28/93	06/28/93 COMPLTD : 06/28/93				
IETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 70-85 FT	85 FT PROTECTION LEVEL: D				
OC ELEV.: 156 FT.	MONITOR INST.: OVA	TOT DPTH: 87FT.	ортн то ӯ 7	6.72 FT.			
OGGED BY: A. Cohen	WELL DEVELOPMENT DATE:		SITE: 1 - N.W	I. Disposal Area			
SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	Z LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA			
5—————————————————————————————————————	ND – very fine to fine, slightly silty	y, striations.	8	,12,12,14			
10	ND – tan, very fine to fine, well gr	aded, trace silt.	SP	4,6,6,7			
15— 0 SA	ND - fine to medium, striations.		SP 8	6,9,13,15			
20— 1.5/2.0 0 SA	ND — white, fine, well graded, mott	led.	SP	5,4,5,7			
25 0 SA	ND - fine to medium, mottied.		SP	7.7,9,12			
0 SA	ND — SAA, medium, well graded, tra	ace coarse.	SP 8	.15,15,24			
	ND – pale yellow to white, fine, tra aded.	ace medium, well	SP	5,7,9,9			
40————————————————————————————————————	NDY CLAY - moderate red to gray	y, mottled.	SC	9.8,14,15			
45— N/A	PAGE 1 of OIM		\	.33,39,34 ERVICES, INC.			

	LOG	of WELL: WHF-1-3	BORING NO.			
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO:	RI PHASE IIA		
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 06/28/93	COMPLTD: 06/28/93			
AETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 70-85 FT	PROTECTION L	.EVEL: D		
FOC ELEV.: 156 FT.	MONITOR INST.: OVA	TOT OPTH: 87FT.	DPTH TO ¥ 76	.72 FT.		
OGGED BY: A. Cohen	WELL DEVELOPMENT DATE:		SITE: 1 - N.W.	Disposal Area		
CETTH FIT. SAMPLE SAMPLE OUT STANKS HEADSPACE (ppm)	SOIL/ROCK DESCRIF AND COMMENTS Continued from P	SYM SYM	SOIL CLASS	WELL DATA		
SAM	ND – pale moederate red to wharse, well graded, mottled.		SP :			
	ND – white, fine to medium, well obles, black phosphatic grains.	graded, trace	SP 38,3	31,32,51		
55— N/A SAN	ND – white, fine to medium, peb	bles.	SP 25,32	2,44,46		
0 -	ND - fine, well graded.		SP 27,38	8,44,50		
5—————————————————————————————————————	ND - SAA, moist.		31,33	3,41,48		
0	ND - white, fine, poorly graded		SP 12,1	4,15,16		
5—————————————————————————————————————	ND - white, fine, poorly graded	, saturated.	SP 15,11	7,16,14		
0	ND - white, fine, poorly graded	, saturated.	15,21	1,25,38		
5—			SP			
				MACA		

ITLE: NAVAL AIR :	NOITATE	WHITIN	G FIELD	LOG of	WELL: WHF-2-1		BORI	NG NO.	
LIENT: SOUTHNAY	FACENGO	ЮМ					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Grou	ndwater F	rotecti	on Inc.		DATE STARTED: 7	/16/93		COMPLTD: 7/17/	93
4ETHOD: MUD ROTA	RY		CASE SIZE: 2"		SCREEN INT.: 70-	-85 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 151.31 F	ELEV:: 151.31 FT. MONITOR INST.: OVA				TOT OPTH: 87FT.		DPTH	TO ¥ 78.1 FT.	
OGGED BY: N. Rol	GED BY: N. Roka WELL			DATE:			SITE:	2- Land fill	
L LABORATORY DE SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	CDESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	22/24	BKG	SILTY SAND - red, fine, (poorly gra	ded, loose, damp.		SM	3,3,4,3	0.00.00.00.00.00.00.00.00.00.00.00.00.0
10	24/24		SAND – red, fine, some si subrounded.	it, poorly	graded, loose, dry,		SP	4,3,2,2	2000000
15—	19/24	<1	Same as above.				SP	7,6,8,8	0.0.0.0
20	24/24		Same as above, little silt Same as above, inter layo fine, tan, poorly graded,	ered mediu			SP	7,6,7,9	
25—	24/24	BKG	subangular. Same as above. SILTY SAND – red to ligh poorly graded, medium de		to light tan, fine,	1/2	SM	11,6,7,9	
30	22/24		Same as above. SAND – white, fine, poorl moist, subangular.	y graded,	medium dense,		SP	15,9,10,12	
35—	22/24	BKG	Same as above, grade to	fine to m	edium.		SP	14,11,9,16	300000
40	16/24		Same as above, white, fir dense, moist, subangular.		um, poorly graded,		SP	17,18,19,22	
45—		BKG					\ SP /	15,15,21,24	1.1.1

TITLE: NAVA	AL AIR STA	V I TON	WHITI	NG FIELD	LOG of	WELL: WHF-2-1		BORIN	IG NO.	
LIENT: SOL	UTHNAVFA	CENGC	ОМ					PROJE	CT NO: RI PHASE	IIA
CONTRACTO	R: Groundw	ater P	rotect	ion Inc.		DATE STARTED: 7	/16/93		COMPLTD: 7/17/	93
ETHOD: MU	D ROTARY			CASE SIZE: 2"		SCREEN INT.: 70	-85 FT	PROTE	CTION LEVEL: D	
OC ELEV.:	151.31 FT.			MONITOR INST.: OVA		TOT DPTH: 87FT.		DPTH 1	FO ¥ 78.1 FT.	
OGGED BY:	N. Roka			WELL DEVELOPMENT	DATE:		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	SITE:	2- Land fill	
L LABORA	-	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
-		20/24		Same as above.				SP		
0-		20/24	BKG	Same as above.			7.000	SP	19,22,23,26	
5—		20/24	BKG	Same as above, fine grad staining spots.	e to medio	um, small dark		SP	27,18,18,22	2022002
0-		18/20	BKG	Same as above, light pink, SILTY SAND - trace clay graded, medium dense, so	, low plas			SP	12,8,9,20	
5		18/24	BKG	SAND - whitish tan with d pink layering, fine to medi dense, dry, subrounded.			72.72.7	SP	23,26,30,19	
)— -		18/24	BKG	Same as above.				SP	19,19,30,40	
5		20/24	3	Same as above, dark gree layering, dense, wet.	en spottlir	ng, light pink		SP	20,20,26,29	
0-		24/24	2	SAND – light tan with rust moderately well graded, n subrounded to subangular	nedium dei			SP/SW	8,10,11,11	
5										
00										·

ITLE: Naval Air St	ation whiting Field		LOG of W	ELL: WHF-3-1D		BORIN	6 NO.	
LIENT: SOUTHNAV	FACENGCOM					PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Grou	ndwater Protectio	n Inc.	0	IATE STARTED: 5/2	1/93		COMPLTD: 6/11/9	93
ETHOD: MUD ROTA	RY	CASE SIZE: 2"	S	CREEN INT.: 170-1	BO FT	PROTE	CTION LEVEL: D	
OC ELEV.: 173.21 F	т	MONITOR INST.: F	ID/OVA T	OT DPTH: 182FT.		DPTH T	O 및 104.41 FT.	
OGGED BY: N. Rol	a	WELL DEVELOPMEN	NT DATE:			SITE: 3	3	
L LABORATORY AWAY	RECOVERY HEADSPACE (ppm)		CK DESCRIPTIO COMMENTS	N	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		ithlogical descriptions	begin at 40 fe					

TTLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-1D	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO:	RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/21/93	COMPI	_TD: 6/11/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTECTION L	EVEL: D
OC ELEV.: 173.21 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 182FT.	DPTH T O ♀ 10-	4.41 FT.
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 3	
SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI SYM	SOIL CLASS	WELL DATA
SAI	ND – white, fine to medium graine silt.		SP	
5—				
0— 1.5 Sar	me as above, trace (3%) fine bla	ck, sand.	SP 10,2	0,21,27
5—				
	me as above, medium to coarse g aded, coarse fraction is rounded,	1 1	SP 29,3	1,37,43
5—				
0 Sal	me as 50'-52' sample, fine graine	ed.	SP 14,18	3,25,27
5—				
			SP 19,2	1,38,33

ITLE: Naval Air Station Whiting Fi	LOG of	f WELL: WHF-3-1D	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI	PHASE IIA
ONTRACTOR: Groundwater Protec	tion Inc.	DATE STARTED: 5/21/93	COMPLT	D: 6/11/93
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTECTION LE	VEL: D
OC ELEV.: 173.21 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 182FT.	DPTH TO ¥ 104.4	11 FT.
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 3	
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS	WELL DATA
5—	Same as above, medium grained, tra		SP	
0 24/24 0 23/24	CLAY — grey to purple, highly plast thick) fine sand and clay lenses. Same as above.	tic, 2 thin (<1"	7,7,	
BKG	CLAY — tan with gray mottling, inor moderately plastic, firm to stiff.	ganic, moist,	CL 7,10,1	4,18
1.4	CLAYEY SAND – light tan sand wit poorly graded, inorganic, saturate dense.		22,29,	30,40
BKG			SP 25,28	.42,41

CLIENT: SOUTHNAVFACENGOM CONTRACTOR: Groundwater Protection Inc. CONTRACTOR: Groundwater Protection Inc. CASE SIZE: 2" COMPLID: 6/11/93 TOC ELEV: 173.21 FT. COGGED BY: N. Roka MELL DEVELOPMENT DATE: CONTINUED FT PROTECTION LEVEL: D DOTH TO \$ 104.41 FT. SITE: 3 EL LABORATORY BY AND OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D DO NO WAND COMMENTS CONTINUED FT PROTECTION LEVEL: D DO NO WAND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS CONTINUED FT PROTECTION LEVEL: D BLOWS/6-IN BY OWN AND COMMENTS COMPLETED: STEET COMPLETED: D BLOWS/6-IN BY OWN AND COMMENTS COMPLETED: D BLOWS/6-IN BY OWN AND COMMENTS COMPLETED: D BLOWS/6-IN BY OWN AND COMPLETED: D BLOWS/6-	CONTRACTOR: Groundwater Protection Inc. DATE STARTED: 5/21/93 COMPLTD: 6/11/93 METHOD: MUD ROTARY CASE SIZE: 2" SCREEN INT.: 170-180 FT PROTECTION LEVEL: D TOC ELEV.: 173.21 FT. MONITOR INST.: FID/OVA TOT DPTH: 182FT. DPTH TO \$ 104.41 FT. LOGGED BY: N. Roka MELL DEVELOPMENT DATE: SITE: 3 SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 3 16/24 SAMPLE ID. S SP 16/24 N/A REFUSAL, SAND - tan, fine, poorly graded, subrounded, saturated, dense. SP 130- 137- 137- BKG Same as above, except OVA of spoon is 10 ppm. SP 27.46.48.44	CONTRACTOR: Groundwater Protection 1 DATE STARTED: 5/21/93 COMPLTD: 6/11/93	TITLE: Naval Air Stat	tion Whit	ing Fie	ld	LOG of	WELL: WHF-3-1D		BOR	ING NO.	
METHOD: MUD ROTARY CASE SIZE: 2" SCREEN INT.: 170-180 FT PROTECTION LEVEL: D TOC ELEV.: 173.21 FT. MONITOR INST.: FID/OVA TOT DPTH: 182FT. DPTH TO \$ 104.41 FT. SITE: 3 FL. LABORATORY A SAMPLE ID. SOUL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 3 125 130 13724 N/A REFUSAL, SAND - tan, fine, poorly graded, subrounded, saturated, dense. SP 23.56Refsl 130 BKG Same as above, except OVA of spoon is 10 ppm. BKG Same as above, no OVA detects. SP 27.46.48.44	METHOD: MUD ROTARY CASE SIZE: 2" SCREEN INT.: 170-180 FT PROTECTION LEVEL: D TOC ELEV.: 173.21 FT. MONITOR INST.: FID/OVA TOT DPTH: 182FT. DPTH TO \$ 104.41 FT. DPTH TO \$ 104.41 FT. SITE: 3 SI	METHOD: MUD ROTARY CASE SIZE: 2" SCREEN INT.: 170-180 FT PROTECTION LEVEL: D	CLIENT: SOUTHNAVE	ACENGO	СОМ					PROJ	ECT NO: RI PHASE	IIA
TOC ELEV.: 173.21 FT. MONITOR INST.: FID/OVA TOT DPTH: 182FT. DPTH TO \$ 104.41 FT. SITE: 3 #EL LABORATORY ### Supplies ### Supplie	TOC ELEV.: 173.21 F.T. MONITOR INST.: FID/OVA TOT DPTH: 192FT. DPTH TO \$ 104.41 FT.	TOC ELEV.: 173.21 FT. MONITOR INST.: FID/OVA TOT DPTH: 192FT. DPTH TO 3 104.41 FT. LOGGED BY: N. Roka MELL DEVELOPMENT DATE: SITE: 3 ### LABORATORY ### STAND - Inght tan, fine, poorly graded, saturated, dense. 185	CONTRACTOR: Ground	lwater F	rotect	ion Inc.	.	DATE STARTED:	5/21/93		COMPLTD: 6/11/9	3
HELL DEVELOPMENT DATE: SITE: 3 LABORATORY HELD SUPPLY SU	HELL DEVELOPMENT DATE: SITE: 3 Fig. 1. ABBORATORY N. Roka WELL DEVELOPMENT DATE: SITE: 3 SITE: 4	LABORATORY SAMPLE ID.	METHOD: MUD ROTAR	Υ		CASE SIZE: 2"		SCREEN INT.: 1	70-180 FT	PROTI	ECTION LEVEL: D	
EL LABORATORY AND COMMENTS SAMPLE ID. SAMPL	SAND - light tan, fine, poorly graded, subrounded, saturated, dense. 125	130 13/24 13/24 13/24 150 16/24 13/24 16/24 13/24 16/24	TOC ELEV.: 173.21 F.T.			MONITOR INST.: FI	D/OVA	TOT DPTH: 182F	Т.	DPTH	TO ♀ 104.41 FT.	
SAND - light tan, fine, poorly graded, subrounded, saturated, dense. N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. SP 23.56Refsl SP 23.56Refsl SP 23.56Refsl SP 23.56Refsl SP 27.46.48.44	125	16/24 SAND - light tan, fine, poorly graded, subrounded, saturated, dense. SP 23,56,-Refsl 1/24 N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. SP 23,56,-Refsl 130 13/24 >10 Same as above, except 0VA of spoon is 10 ppm. SP 18,37,50,- 140	LOGGED BY: N. Roka	l		WELL DEVELOPMEN	T DATE:			SITE:	3	
125 N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. 130 Same as above, except OVA of spoon is 10 ppm. 13724 BKG Same as above, no OVA detects.	125 N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. SP 23.56, -Refsi SP 13.750, - 13.724 Same as above, except OVA of spoon is 10 ppm. SP 18.37,50, - 140 Same as above, no OVA detects. SP 27.46,48,44 SP 145 SAME as above, except grading down to medium SP 22.37.52, - SP 23.56, -Refsi SP 23.56, -Refs	125— N/A REFUSAL, SAND - tan, fine, poorly graded, saturated, very dense. 130— 13/24 >10 Same as above, except OVA of spoon is 10 ppm. SP 18.37,50,- 145— 145— 150— BKG Same as above, no OVA detects. SP 27,46,48,44	OE DA LA	RECOVERY	HEADSPACE (ppm)	AND	COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
130— 130— 131/24 >10 Same as above, except OVA of spoon is 10 ppm. SP 18,37,50,— 140— BKG Same as above, no OVA detects. SP 27,46,48,44	130— 13/24 Same as above, except OVA of spoon is 10 ppm. Sp 18,37,50,- 18,3	130— 13724 1372		16/24			oorly graded	d, subrounded,		SP		
13/24 13/24 13/24 BKG Same as above, no OVA detects. 5P 27,46,48,44	13/24 BKG Same as above, no OVA detects. SP 27.46,48,44	13724 BKG Same as above, no OVA detects. Sp 27,46,48,44 BKG Same as above, except grading down to medium Sp 22,37,52,-	125	1/24			ïne, poorly ç	graded,		SP	23,56,–Refsl	
BKG Same as above, no OVA detects. SP 27,46,48,44	140— 145— 150— BKG Same as above, no OVA detects. SP 27,46,48,44	140— 145— 150— 18/24 BKG Same as above, no OVA detects. SP 27,46,48,44 SP 22,37,52,— SP 22,37,52,—	130—	13/24	>10	Same as above, except	OVA of spoc	on is 10 ppm.		SP	18,37,50,-	
	BKG Same as above, except grading down to medium SP 22,37,52,-	BKG Same as above, except grading down to medium SP 22,37,52,-	-	13/24	BKG	Same as above, no OVA	detects.			SP	27,46,48,44	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-1D	BORING NO.	···
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE I	IA
ONTRACTOR: Groundwater Protection 1	Inc.	DATE STARTED: 5/21/93	COMPLTD: 6/11/93	
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTECTION LEVEL: D	
OC ELEV.: 173.21 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 182FT.	DPTH TO ¥ 104.41 FT.	
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 3	
SAMPLE SAMPLE HEADSPACE (PDIR)	SOIL/ROCK DESCRIPT! AND COMMENTS Continued from PA(THO!	SOIL CLASS Brome-9/Smoth	WELL DATA
5—	ne as above, fine to medium, Grad	de to fine at 1 ft.	SP 16,26,28,37	
15				
05—				

	ting Field		LOG o	f WELL: WHF-3-1S		BOR	ING NO.	
IENT: SOUTHNAVFACENG	СОМ		1			PRO.	JECT NO: RI PHASE	IIA
INTRACTOR: Groundwater	Protection	Inc.		DATE STARTED: 6	3/12/93		COMPLTD: 6/12/	93
ETHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.: 113	-123 FT	PROT	ECTION LEVEL: D	
DC ELEV.: 173.26 FT.		MONITOR INST.: FIE	/OVA	TOT DPTH: 123.5F	Τ.	DPTH	TO ♀ 104.53 FT.	
GGED BY: N. Roka		WELL DEVELOPMENT	DATE:			SITE	: 3	
SAMPLE SAMPLE	HEADSPACE (ppm)	SOIL/ROCH	COESCRIPT	LION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	SE	E WHF-3-1D FOR LITH		DESCRIPTIONS				

ITLE: Naval Air Station Whi	ting Field		LOG of WELL: WHF	-3-1S	BORII	NG NO.	
IENT: SOUTHNAVFACENG	СОМ				 	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater	Protection	Inc.	DATE STA	ARTED: 6/12/93		COMPLTD: 6/12/	93
ETHOD: MUD ROTARY		CASE SIZE: 2"	SCREEN I	NT.: 113-123 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 173.26 FT.		MONITOR INST.: FID/OV	A TOT DPTH	i: 123.5FT.	DPTH	T O ♀ 104.53 FT.	
OGGED BY: N. Roka		WELL DEVELOPMENT DA	TE:		SITE:	3	
FT. SAMPLE SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DE AND COMM Continued fro	ENTS	LITHOLOGIC SYMBOL	SOIL CLASS	8LOWS/6-IN	WELL DATA
1.8/2	gra ligh 1 Sar med	ND — light purple and white ined, poorly graded botton t to dark brown, dry. ne as above, light purple t dium grained, some silt (20 T — grey, poorly graded, i	m 10 " with silt (4 o light brown, fine %), poorly graded	0%),	SP SP	17,31,28,33 wor wor	
2/2		ettom 2") – grey, highly pla ne as above, tan and grey			СН	wor	
2/24	BKG CLA BKG SAN CLA der	Y - light tan, moderately Y, light tan, saturated. NDY CLAY - light tan, fine. YEY SAND - very little re se, saturated. R = WEIGHT OF ROD			CL SC	8,15,17,28 -,-,24,28 50,50,-	

TITLE: Naval Air Stati	ion Whiting H	ield	L06 o	F WELL: WHF-3-20)	BORI	NG NO.	
CLIENT: SOUTHNAVE	ACENGCOM					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Ground	water Protec	ction Inc.		DATE STARTED:	5/9/93		COMPLTD: 5/10/	93
METHOD: MUD ROTAR	1	CASE SIZE: 2"		SCREEN INT.: 1	75-180 FT	PROTE	CTION LEVEL: Mo	dified D
OC ELEV.: 173.4 FT.		MONITOR INST.: FID.	/OVA	TOT DPTH: 180F	Т.	DPTH	TO ¥ 104.69 FT.	
OGGED BY: M. Libers	man	WELL DEVELOPMENT	DATE:			SITE:	3	
L LABORATORY L LABORATORY L SAMPLE ID. W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
						SP		
5—]		SEE WHF-3-2S FOR ADDI			777	ML		
		DESCRIPTIONS. SPOONS COLLECTED ONLY BELOW			7.2			
°					771	ML		
5—		·				ML		
_			×					
						ML		
-								
5—]						ML		
0-						SP		
35—						SP		
						- Jr		
10						SP		
15—					V	SP		
50—						SP		
55—						SP		
50—					. 4.5.2.4.2.7	SP		
_ , ,	•	0.400	<u> </u>	4400 100			AL SERVICES	73.10

			L	OG of WELL:	WHF-3-2D	BORI	NG NO.	
LIENT: SOUTHNA	VFACENGO	OM				PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Gro	undwater P	rotectio	on Inc.	DATE	STARTED: 5/9/93	···	COMPLTD: 5/10/	93
ETHOD: MUD ROT	ARY		CASE SIZE: 2"	SCRE	EN INT.: 175-180 FT	PROTE	CTION LEVEL: Mo	dified D
OC ELEV.: 173.4 (₹ Т .		MONITOR INST.: FID/OVA	A TOT	PTH: 180FT.	DPTH	TO ♀ 104.69 FT.	
OGGED BY: M. Li	berman		WELL DEVELOPMENT DAT	TE:		SITE:	3	
L LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEAOSPACE (ppm)	SOIL/ROCK DES AND COMME Continued fro	ENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
]						SP		77
6—						SP		12,2,2,1
/1—] 						SP		
6—						SP		
6-1						SP		
91—						SP		
6—						SP		
01—						sc		
6						-		
111	. ,					·		
21—	0.5/2	1 1	SILTY SAND – tan, fine grain SAND – tan, fine grained, son			SP	28,ref 24,32,27,50	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-2D	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI	PHASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/9/93	COMPLTE): 5/10/93
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 175-180 FT	PROTECTION LEV	'EL: Modified D
OC ELEV.: 173.4 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180FT.	DPTH TO ₹ 104.69	9 FT.
OGGED BY: M. Liberman	WELL DEVELOPMENT DATE:		SITE: 3	
RECOVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOU	SOIL CLASS	Z Z WELL DATA
1/2	ne as above.		SP 17,26,25	5,35
	ne as above, white, no clay or si	lt.	SP 26,27,3	
0.8/2 0 San	me as above (mud stained).		SP 20,29,2	4,40
9 San	ne as above.		SP 28,38,50	0,ref
7 0.8/2 18 San	ne as above, fine to medium grai	ned.	12,17,17	,25
7 1/2 7 San	ne as above.		SP 15,19,18	3,19
	ND – tan, medium to coarse grair reddish brown lense.	ned, well graded,	SP 28,40,4	5.50
	ND (6") – white to light pink, me ttom light brown, fine grained, so		SP 30,41,4	9,43 图 图
	ND – light tan, medium grained, w arse, little to no silt, saturated.	vell graded, some	SP 28,60,5	0,ref
<u>-</u>]		·		

TITLE: Naval Air Statio	on Whitir	ıg Field		LOG at	WELL: WHF-3-2S		BORI	ING NO.	
CLIENT: SOUTHNAVFA	CENGC	M		· <u> </u>			PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundw	vater Pr	otectio	n Inc.		DATE STARTED: 5	/8/93		COMPLTD: 5/8/9	93
METHOD: Hollow Stem	Auger		CASE SIZE: 2"		SCREEN INT: 100)-115 FT	PROTI	ECTION LEVEL: B.	Modified (
TOC ELEV.: 174.98 FT.			MONITOR INST: FID		TOT DPTH: H5FT.		DPTH	TO ¥ 101.37 FT.	
OGGED BY: D. Wang			WELL DEVELOPMENT	DATE:			SITE:	: 3	
L LABORATORY L SAMPLE ID. &	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-	NA		ANU – tan, fine grained, ense, damp.	some clay	, little silt, medium		SP		
5—	2/2		LAYEY SAND/SANDY CL rained, firm (stiff) low pl				ML	2,1,7,9	1 2 V 2 V A
10-		3 5	ame as above.				ML	1,4,7,9	
	2/2								
5—	2/2		IANDY CLAY — light red t ilt, firm (stiff) sand is wh				ML	3,4,8,5	
70	1.5/2	2 5	ame as above.				ML	5,7,8,8	
25—	1.2/2		Game as above (0.6°). S. grained, no silt.	AND (0.6') – att-white, fine		ML	3,14,8,7	
	1.7/2		Same as above, little whit and lense at 31', sub-an		oist; white coarse		SP	8,7,8,7	
15—	1.9/2	0 8	Game as above.				SP	2,6,7,9	
40		0					\ SP /	5,5,7,9	

TITLE: Naval Air Station Whiting Field	LOG af	WELL: WHF-3-2S	BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/8	/93	COMPLTD: 5/8/93	3
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 100-1	15 FT PROT	ECTION LEVEL: B, M	lodified D
TOC ELEV.: 174.98 FT.	MONITOR INST.: FID	TOT DPTH: 115FT.	ОРТН	TO ¥ 101.37 FT.	
LOGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE	:3	
DEPTH TI. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 1	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
	ne as above, no pale red, signific		SP		
15— 0 Sam	ne as above.		SP	1,8,10,11	" " " " " " " " " " " " " " " " " " "
2/2 O Sam	ne as above, very fine grained, li rse white sand.	ttle to some	SP	12,13,14,19	
55— 1 Sam	ne as above, little coarse, of1-wl d.	hite, sub-angular	SP	11,12,14,19	TANGE AND TO
7 Зап	ne as above.		SP	12,14,19,26	
- 1.4/2 mois	ne as above, pink, fine grained, s st, color grades to off-white/ligh ottom 0.7°).		SP	wr,wr,14,9	
1.1/2 100 SAN	N□ – off-white to very light grey	r, fine.	SP	12,19,22,24	TO THE TREE TO
75— NA Sam	ne as above.		SP	17,19,20,20	
			\ SP /	23,28,14,28	

18/2 Same as above, interbedded with light yellow and pink. SP 10,20,33,35 Same as above, interbedded with light yellow and pink. SP 10,20,33,35 SP		:Naval Air S					LOG of WELL: WHF-3-2S		BORI	NG NO.	
CASE SIZE: 2" SCREEN INT.: 100-H5 FT PROTECTION LEVEL: 8, Nod field CELEV.: 174.98 FT. MONITOR INST.: FID TOT DPTH: H5FT. DPTH TO \$ 101.37 FT.	LIEN	IT: SOUTHNA	VFAC	ENGC	ОМ		· · · · · · · · · · · · · · · · · · ·		PROJ		
MONITOR INST: FID TOT DPTH: HISFT. DPTH TO \$ 101.37 FT.	CONT	RACTOR: Gro	undw	ater F	rotec	tion Inc.				COMPLTD: 5/8/	93
SITE: 3 SITE	ETH	OD: Hollow S	tem A	uger		CASE SIZE: 2"	SCREEN INT: 10	0-115 FT			Modified
Same as above, vellow brown to off-white, some silt; SP 10,20,33,35	OC E	LEV.: 174.98	FT.			MONITOR INST. FID	TOT DPTH: H5FT.				
18/2 Same as above, interbedded with light yellow and pink. SP 10,20,33,35	.OGG	ED 8Y: D. W	ong			WELL DEVELOPMENT DA	NTE:			3	
18/2 Same as above, interbedded with light yellow and pink. SP	DEPIH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	AND COM	MENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
12/2 Same as above, yellow brown to off-white, some slit; 2" lense of silty clay (38"), red brown mottling, plastic, medium stiff. Same as above, purple, yellow, tan, off-white and yellow brown mixture no lense. SP 9,13,18,22	-			1.6/2		Same as above, interbedded			SP		
2" lense of silty clay (38°), red brown mottling, plastic, medium stiff. 80 Same as above, purple, yellow, tan, off-white and yellow brown mixture no lense. 80 SANDY CLAY/CLAYEY SAND (1') - same coloring as above, very low plasticity, semi firm (medium stiff). 81 SAND - Same as above, light brown to brown purple. 82 SANDY CLAY - very light grey, red brown and yellow brown mottling, plastic, firm (stiff), saturated, 83 SANDY CLAY - light grey, yellow brown mottling, little fine sand, trace silt plastic, firm, moist. 84 SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. 85 Same as above, some silt, 2 clay lenses (3" thick) 86 Same as above, some silt, 2 clay lenses (3" thick) 87 SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. 86 Same as above, some silt, 2 clay lenses (3" thick) 87 SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. 87 Same as above, some silt, 2 clay lenses (3" thick) 88 Same as above, increased clay content.	- 5—				25	Same as should valled brought	a to off-white come silt.		C.D.	10,20,33,35	
1.5/2 Same as above, purple, yellow, tah, off-write and yellow brown mixture no lense. SANDY CLAY/CLAYEY SAND (I') – same coloring as above, very low plasticity, semi firm (medium stiff). SAND – Same as 90 – 92'. SANDY CLAY – very light grey, red brown and yellow brown mottling, plastic, firm (stiff), saturated, CLAY – light grey, yellow brown mottling, little fine sand, trace sit plastic, firm, moist. SANDY CLAY/SILTY CLAY – mottling as above, low plasticity, firm. Same as above, sandy clay. 3.4,12,18 Same as above, some silt, 2 clay lenses (3" thick) Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content. ML/CL 8,7,8,8 8,7,10 ML/CL 9 2/2 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content.	- -			1.2/2		2" lense of silty clay (36'), r			Sr		
above, very low plasticity, semi firm (medium stiff). SAND - Same as 90 - 92'. Same as above, light brown to brown purple. SANDY CLAY - very light grey, red brown and yellow brown mottling, plastic, firm (stiff), saturated, CLAY - light grey, yellow brown mottling, little fine sand, trace silt plastic, firm, moist. SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. Same as above, sandy clay. Same as above, some silt, 2 clay lenses (3" thick) Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content.	- 			1.5/2	100				SP	9,13,18,22	
Same as above, light brown to brown purple. 1.7/2 40 1.7/2 40 1.7/2 41 1.8/2 4 SANDY CLAY - very light grey, red brown and yellow brown mottling, plastic, firm (stiff), saturated, CLAY - light grey, yellow brown mottling, little fine sand, trace sit plastic, firm, moist. SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. Same as above, sandy clay. 3.4,12,18 2/2 4 Same as above, some silt, 2 clay lenses (3" thick) 2/2 9 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content.	- - - -5—-			1.8/2	80	above, very low plasticity, so			SP	20,46,41,28	
1.7/2 1.8/2 1.8/2 1.8/2 4 CLAY - light grey, yellow brown mottling, little fine sand, trace silt plastic, firm, moist. SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. Same as above, sandy clay. 5 Same as above, some silt, 2 clay lenses (3" thick) 2/2 9 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content. ML/CL ML/CL ML/SP ML/SP ML/SP ML/SP	- - 00			1.7/2			ta brown purple.	/// ///	ML		
sand, trace silt plastic, firm, moist. SANDY CLAY/SILTY CLAY - mottling as above, low plasticity, firm. Same as above, sandy clay. Same as above, some silt, 2 clay lenses (3" thick) 2/2 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content. ML/CL ML/CL ML/SP Wr,12,21,19	-			1.7/2		brown mottling, plastic, firm	(stiff), saturated,				
plasticity, firm. Same as above, sandy clay. 3,4,12,16 -3,11,12 Same as above, some silt, 2 clay lenses (3" thick) 2/2 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content. ML/CL ML/CL MRL/CL Wr,12,21,19)5 -			1.6/2	4	sand, trace silt plastic, firm,	moist.			WE	
Same as above, some silt, 2 clay lenses (3" thick) 2/2 Same as above, top 6" clay, plastic, little silt, trace sand. Same as above, increased clay content. ML/CL 4,3,11,12 6,7,8,8 Wr,12,21,19	-				5	plasticity, firm.				3,4,12,18	
sand. 2/2	10-				4	Same as above, some silt, 2	clay lenses (3" thick)			-,3,11,12	
15— 2/2 Salile as above, increased day content.				2/2		sand.			ML/CL		
	15			2/2	5				ML/SP	wr,12,21,19 wr,8,13,25	

TITLE: Naval Air Station Whiting Fie	LOG	of WELL: WHF-3-3D		BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protecti	on Inc.	DATE STARTED: 5	/4/93		COMPLTD: 5/12/	93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170)-180 FT	PROT	ECTION LEVEL: MO	dified D
TOC ELEV.: 175.96 FT.	MONITOR INST.: FID	TOT DPTH: 180FT.		DPTH	TO 및 108.03 FT.	
LOGGED BY: M. Liberman	WELL DEVELOPMENT DATE:			SITE:	3	
DEPTH FT. OI 314MYS SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCR AND COMMENT		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
10 — O 0.2/2 O 1.9/2 O 30 — O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SANDY CLAY - dark purple, fine mottling, trace silt. SANDY CLAY - grey, fine grained and trace silt. SAND - off white, fine grained, modern and the contract of the contract	d, dark brown brown, fine grained,		ML/SP	5,9,16,18 6,8,8,12	
35—						
40—				SP	9,12,14,19	

ITILE	: Naval Air S	tation win	ung riek		LOG of	WELL: WHF-3-3D		BORI	NG NO.	
CLIEN	IT: SOUTHNA	VFACENG	СОМ					PROJ	ECT NO: RI PHASE	IIA
CONT	RACTOR: Grou	ındwater	Protectio	on Inc.		DATE STARTED:	5/4/93	COMPLTD: 5/12/93		
METH	OD: MUD ROTA	ARY		CASE SIZE: 2"		SCREEN INT.: 17	0-180 FT	PROTECTION LEVEL: Modified D		
TOC E	LEV.: 175.96	FT.		MONITOR INST.: FID		TOT DPTH: 180F	T	DPTH	TO ♀ 108.03 FT.	
LOGGE	ED BY: M. Lib	erman		WELL DEVELOPMENT	DATE:			SITE:	3	
DEPTH FT.	LABORATORY &	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	COMMENTS		LITHOLOGIC	SOIL CLASS	BŁOWS/6-IN	WELL DATA
		0.8/2		Same as above.				SP		
45—————————————————————————————————————		1.5/2	0 5	SAND — light brown, fine soarse; bottom 4" same a coarse grains. SAND (4") — light brown bottom 6" off—white to pa	as previous	s spoon, trace		SP	19.25,24.27 27,35,45,46	
65—			0						27,36,48,ref	
75		1.2/2	, ,	SAND - light brown, fine lounded, firmly packed 2'				SP .	2.,33,.31,3	
80-		1	0				L	\ SP /	37,51,ref	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-3D	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	SE IIA
CONTRACTOR: Groundwater Protection 1	nc.	DATE STARTED: 5/4/93	COMPLTD: 5/1	2/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTECTION LEVEL:	Modified D
TOC ELEV.: 175.96 FT.	MONITOR INST.: FID	TOT DPTH: 180FT.	DPTH TO ¥ 108.03 FT.	
LOGGED BY: M. Liberman	WELL DEVELOPMENT DATE:		SITE: 3	
CECOVERY RECOVERY (ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PAI	THO	SOIL CLASS NI-9/SMOTB	WELL DATA
0.8/2 SAN	D – pale orange to very light br y packed, trace coarse, sub-ro	own, fine grained,	SP	
	D — light brown to pale orange, ned, very dense, trace coarse e).		SP 28,35,39,ref	
100 0 Sam	e as above, trace silt.		SP 42,ref	
- 2/2 mot	Y — orange yellow, some fine sa tling, medium plasticity, little silt. e as above.		9,12,16,17 12,18,22,19	
115—				

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-3D	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA		
ONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 5/4/93	COMPLTD: 5/12/93		
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTECTION LEVEL: Modified D		
OC ELEV.: 175.96 FT.	MONITOR INST.: FID	TOT DPTH: 180FT.	DPTH TO ♥ 108.03 FT.		
OGGED BY: M. Liberman	WELL DEVELOPMENT DATE:		SITE: 3		
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO SYM	SOIL CLASS OIL CLASS AMORE AI-9/SWOTA		
2/2 1.5 CLA plas plas	Y – light grey, red and light bro tic, bottom 1' dark red, with med	wn mottling, very	CH 17.24,60,ref		
10—					
50—					
55					
60—		<u></u>			

TITLE: Naval Air	Station W	niting Fi	eia	LOG of	WELL: WHF-3-3D		BOR	ING NO.	
CLIENT: SOUTH	NAVFACEN	зсом					PRO	ECT NO: RI PHASE	IIA
CONTRACTOR: G	roundwater	Protec	tion Inc.		DATE STARTED: 5	/4/93		COMPLTD: 5/12/	93
METHOD: MUD RO	OTARY		CASE SIZE: 2"		SCREEN INT.: 170	-180 FT	PROT	ECTION LEVEL: Mo	dified D
TOC ELEV.: 175.9	96 FT.		MONITOR INST.: FID		TOT DPTH: 180FT.		OPTH	TO ¥ 108.03 FT.	
LOGGED BY: M.	Liberman		WELL DEVELOPMENT	DATE:			SITE:	3	
LABORATOR SAMPLE ID	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		5.5	CAND	·				35,28,32,41	
4	1.2/2	1	SAND – white, medium grad gravel and clay pieces, sa		iy graded, trace		SP	00,20,02,	
1									
65—		3.5	64.15 (0)	11	dad 00			wr,wr,30,50	
	1.8/	1	SAND (6") - white, coarse brown, medium grained, po				SP	ett 141 100100	
		-	grey clay. 6" reddish bro						X X
-			graded, some silt.		0				
70—		8.5	SAND - reddish brown, fin	o to modi	um arained searly			28,23,27,27	
	1.5/		graded, some silt	ie to iliedi	um gramed, poorty		SP		
+		\dashv							
]									
175		1.5	SAND - white, medium to f	fine graine	ed, poorly graded.		SP	29,41,44,50	
-	1.5/	2	1" gravel and silt layer.	. .	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		0.		
4		1							
80—									
+									
-									
85—									
1									
4									
90—									
							Ì		
95-			-						
4									
-									
00—	1 1	1	1			1 1	1	ı	

ITLE: Naval Air Stati	OIT WITH CATE I	.ru	LOG of	LOG of WELL: WHF-3-3S			BORING NO.		
LIENT: SOUTHNAVFA	CENGCOM					PROJ	ECT NO: RI PHASE	IIA	
ONTRACTOR: Grounds	water Protect	ion Inc.		DATE STARTED: 5	/8/93		COMPLTD: 5/8/9	33	
ETHOD: Hollow Stem	Auger	CASE SIZE: 2"	•	SCREEN INT: 100	-110 FT	PROT	ECTION LEVEL: Mo	ditied D	
OC ELEV.: 175.45 FT.		MONITOR INST.: FID		TOT DPTH: H2FT.		DPTH TO ¥ 104.36 FT.			
OGGED BY: M. Libern		WELL DEVELOPMENT	DATE:			SITE	SITE: 3		
L LABORATORY Z	RECOVERY HEADSPACE (ppm)	HEADS DAY SOIF/BOOK DESCRIBITION (Ppm) (Pp		TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8IN	WELL DATA	
5—		SEE WHF-3-MW-3D FOR EDESCRIPTIONS.	.ITHOLOG	ICAL					

ITLE: Naval Air Station Whiti	ing rieid	LOG	of WELL: WHF-3	-3S	BORING NO.	
LIENT: SOUTHNAVFACENGC	OM				PROJECT NO: RI PH	IASE IIA
ONTRACTOR: Groundwater P	ratection Inc.		DATE START	ED: 5/6/93	COMPLTD: 5	5/8/93
ETHOD: Hollow Stem Auger	CASE S	SIZE: 2"	SCREEN INT	: 100-110 FT	PROTECTION LEVEL	: Modified D
OC ELEV.: 175.45 FT.	MONITO	OR INST.: FID	TOT DPTH: II	2FT.	□PTH TO ¥ 104.38 F	т.
OGGED BY: M. Liberman	WELL C	EVELOPMENT DATE:			SITE: 3	
SAMPLE ID. SAMPLE SO	HEADSPACE (ppm)	SOIL/ROCK DESCRIF AND COMMENTS Continued from F	5	LITHOLOGIC SYMBOL	SOIL CLASS BLOWS/8-1	Z WELL DATA
5—						

TTLE: Naval Air Statio			LOG of WELL: WHF-3-3	S		IG NO.	
LIENT: SOUTHNAVFA					PROJE	CT NO: RI PHASE	
CONTRACTOR: Grounds	vater Protec	tion Inc.	DATE STARTED		Γ	COMPLTD: 5/8/9	
(ETHOD: Hollow Stem	Auger	CASE SIZE: 2"	SCREEN INT	100-110 FT		CTION LEVEL: Mod	dified D
OC ELEV.: 175.45 FT.		NONITOR INST.: FID	TOT OPTH: 112F	т.		ro ♀ 104.38 FT.	
OGGED BY: M. Liberm		WELL DEVELOPMENT	DATE:		SITE: 3	3	
SAMPLE ID. SAMPLE SOURCE SOURCE	RECOVERY HEADSPACE (ppm)	AND CO	DESCRIPTION DMMENTS from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
95—	2/2 NA 2/2 NA 1/2	SAND - off-white to brow little silt and clay wet at it same as above (1.5°). CL yellow, purple brownand o SAND - same as above.	vn yellow, fine to medium, 05', top 4" red brown. AY (6") – aff-white mattl	ed	SP	14,12,18,22 war 22,30,24,25	

TITLE: Naval Air Station Whiting Field	LOG at	WELL: WHF-3-4	BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 7/28/	93	COMPLTD: 7/31/	'93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT: 111-121 F	T PROT	ECTION LEVEL: 0	
TOC ELEV.: 174.44 FT.	MONITOR INST: OVA	TOT DPTH: 121FT.	DPTH	т н то ұ ғт.	
LOGGED BY: G.Walker	WELL DEVELOPMENT DATE: N/	A	SITE	:3	
DEPTH TT. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	100 JOHN 100	SOIL CLASS	BLOWS/6-IN	WELL DATA
	IU – dark yellow orange, very fir anic rich layer at 3 feet.	e to fine, dry, 8"			
bot	ID – dark yellowish orange, very tom 3" moderate reddish brown v tling	fine to fine, dry, with dark yellow	SP	2,3,4,12	N
0 Sam	e as above, moderate reddish b se, poorly graded, dry, trace cla		SP	8,7,10,12	
	e as above, some pale yellow or		SP	10,12,13,14	
1.5/2 orar	e as above, moderate orange pi nge mottling, medium dense, poor		SP SP	8,7,7,8	
-	e clay. e as above		SP	8,10,12,14	4212112
3	e as above, bottom I foot very p rly graded, dry.	pale orange,	SP	8,9,9,12	
5— 0 Sam	e as above.		SP	8,9,12,12	
0 Sam	e as above.		SP	6,13,14,18	
5 0 Sam	e as above, moist.		SP	13,20,22,28	
- I - III 8/2 I I	e as above, sub—rounded, very o gravel, moist.	dense, trace 1"	SP	20,22,28,31	
	e as above, greyish yellow, poor -rounded,very dense, moist, no g		SP	21,28,38,41	
0.9/2 < 1 Sam	e as above.		SP	28,28,28,31	
5			SP	21,31,36,34	

LIENT. COU	TUNIANE AGENC	20014		LOG at	WELL: WHF-3-4		<u> </u>	NG NO.	
<u> </u>	THNAVFACENG Groundwater		tion Inc			7/2-7	PROJ	ECT NO: RI PHASE	
		riotec			DATE STARTED:		1	CONPLTD: 7/31/	93
ETHOD: MUD			CASE SIZE: 2"		SCREEN INT.: 11		PROTE	ECTION LEVEL: D	
OC ELEV.: 17			MONITOR INST.: OVA		TOT DPTH: 121FT	•		TO ♀ FT.	
OGGED BY:	o.waiker		WELL DEVELOPMENT	DATE: N/	Α		SITE:	3	····
LABORAT L SAMPLE	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	Continued	OMMENTS from PA	GE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	0.8/2		Same as above, moderate	orange pi	ink.		SP		
-	1/2	В	Same as above, greyish or	range pink			SP	41,48,50,55	
5— - - -	0.9/2	5.5	Same as above, with very	pale orang	ge layering.		SP	30,34,34,50	7 7 7 7
)——	0.8/2	20	Same as above top 8 ", ov sand.	ver pale ye	ellow orange		SP	32,39,42,44	
	1/2	8	Same as above.				SP	36,39,47,48	
, 	0.9/2	20	Same as above, moderate	reddish br	own mottling.		SP	36,37,50,41	
_	0.8/2	5.5	Same as above, light red a trace clay, moist.	and pale o	range layering,		SP	18,13,13	
	1.9/2	< 1	Same as above top 8". CL very fine sand, very stiff, s	.AY – gree slightly pla	enish grey, trace astic, moist.		CL	14,17,18,20 12,14,14,17	
_	0	n	No recovery.				L/SP	10,9,11,14	
	2/2	0	CLAY – pale red, little very	/ fine to fi	ne sand, hard,			8,12,18,24	獲 聚
-	1.8/2		poorly graded, non plastic,					8,13,19,19	
1 1	1.9/2		CLAY — Dark yellowish brow sand, moist.	wn, hard, t	race very fine		SP	7,14,28,32	
	1.6/2	١	Same as above,top 18". SA fine to very fine, very dens	se, paarly	graded, wet.			28,31,48,49	
1			Same as above, moderate o	orange pin	k.				目
_									
-									
1									
1									

CASE SIZE: 2" OC ELEV.: 173.44 FT. OGGED BY: M. Lieberman, E. Blomberg WELL DEVELOPMENT DATE:	TOT DPTH: 180FT.	PROJECT NO: RI PHASE IIA COMPLTD: 5/25/93 PROTECTION LEVEL: D DPTH TO \$ 104.81 FT. SITE: 3 SS BLOWS/6-IN BLOWS/6-IN SS BLOWS/6-IN
TOC ELEV.: 173.44 FT. MONITOR INST.: FID/OVA LOGGED BY: M. Lieberman, E. Blomberg WELL DEVELOPMENT DATE:	SCREEN INT: 175-180 FT	PROTECTION LEVEL: D DPTH TO \$ 104.81 FT. SITE: 3
TOC ELEV.: 173.44 FT. MONITOR INST.: FID/OVA LOGGED BY: M. Lieberman, E. Blomberg WELL DEVELOPMENT DATE:	TOT DPTH: 180FT.	DPTH TO ¥ 104.81 FT. SITE: 3
LOGGED BY: M. Lieberman, E. Blomberg WELL DEVELOPMENT DATE:		SITE: 3
——————————————————————————————————————		
L LABORATORY W SOIL/ROCK DESCRIPTI	LITHOLOGIC SYMBOL	CLASS BLOMS/8-IN L DATA
		SOIL
SEE WHF-3-2S FOR LOCAL LITHOLO DESCRIPTIONS.	OGICAL	
0—		

I TENT. SA	UTHNAVFACEN	ICCOM		108 0	WELL: WHF-3-7		ļ	NG NO.	***
	OR: Groundwate		n Inc.		DATE STARTED	I• 5/22/02	PROJ	CONPLTD: 5/25	
	JD ROTARY	. rroteotic	CASE SIZE: 2"		SCREEN INT		PPATI	ECTION LEVEL: D	83
	173.44 FT.		MONITOR INST: FID	/OVA	TOT DPTH: 180F				
		E. Blombe	MELL DEVELOPMENT		IOI BPIN: 180F	1.	SITE:	TO ¥ 104.81 FT.	
L LABORA		111	SOIL/ROCK	DESCRIPT OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	0.8/2	- 8.0 S	AND – white, medium, poc			77 (7 (7 (7 (7 (7 (7 (7 (7 (7 (SP	12,17,18,17	
5—									1 4 4 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4
)— - - -	1.0/2		ame As Above – at 0.8 fl ay, highly plastic.	talin. Is	ense of clay.		SP	14,14,19,22	
5							en e		
)	0.9/2	7 S	AND - white, fine, poorly	graded.			SP	9,10,14,12	
;— — —									
)—	1.0/2		ame As Above.			V44/45/4 V44/45/4	SP	17,22,29,41	1 2 N 2 N 2 N 2 N 2 N 2 N 2 N 2 N 2 N 2
									211 211 2

			106 01	WELL: WHF-3-7D		BOKI	NG NO.	
CLIENT: SOUTHNAVFACENGO				γ	V	PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Pr	ratection	Inc.		DATE STARTED:	5/22/93		COMPLTD: 5/25.	/93
METHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT: 17	5-180 FT	PROTE	CTION LEVEL: 0	
TOC ELEV.: 173.44 FT.		MONITOR INST.: FID		TOT OPTH: 180FT	r	OPTH	TO ¥ 104.81 FT.	
.OGGED BY: M. Lieberman, E.		WELL DEVELOPMENT	DATE:			SITE:	3	
L LABORATORY E	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5	N/A No F	Recavery					31,50,RefusI	21 21 21 21 21 21 21 21 21
1.0/2.0		D — purple to yellow a tly moist.	nd buff, m	edium to coarse,		SP	19,22,47,48	
2.0/2.0	mois	3 – purple and gray m :. 3 – light brown, mediur				SP	3,3,4,4 9,14,8,15	
2.0/2.0	little sligh	silt, Litho change at 1 tly plastic, moist.	.5 ft Silty	Clay – gray,		CL	7,8,9,10	
2.0/2.0	dry.	Y CLAY – gray to ligh	t purple, s	lightly plastic,			7,0,9,10	
1.5/2.0	0.4 Same	e As Above.				-	0,5,5,7	
		As Above — Bottom . y plastic, fat.	5 ft – CLA	Y – light red,			4,7,9,12	
1 1 1	D.2 CLAY	′ – light red, highly pla	istic.				8,13,14,13	
2.0/2.0	0.8 Same	As Above.					9,13,17,18	Q Q
) – yellow to o11-white some silt, poorly grade				SP	11,11,14,33	

	ion Whiting Fie	d .	LOG of WELL:	: WHF-3-7D	-	BORI	NG NO.	
IENT: SOUTHNAVF	ACENGCOM					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Ground	lwater Protect	on Inc.	DATE STARTED: 5/22/93				COMPLTE: 5/25	/93
ETHOD: MUD ROTAR	Y	CASE SIZE: 2"	SCREEN INT: 175-180 FT			PROTE	CTION LEVEL:	
OC ELEV.: 173.44 F1	Γ.	MONITOR INST.: FID	TOT AVO	OPTH: 180FT.		DPTH	TO ¥ 104.81 FT.	
OGGED BY: M. Liebe	rman, E. Blomb	erg WELL DEVELOPMENT	DATE:			SITE:	3	
L' LABORATORY L' SAMPLE ID. VS	RECOVERY HEADSPACE (ppm)	AND CO	DESCRIPTION MMENTS FOM PAGE 3	THO PGIC	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	0.0/2.0	Na Recovery					50+ Retusal	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
5—		SAND – tan, fine to mediur wet.	ı, poorly gradeo	d, dense,		SP	23,33,34,43	21 21 21 21 21 21 21 21 21 21
5—	1.1/2.0	Same As Above.				SP	28,31,33,38	12121212121212121
	1.4/2.0	SAND – tan to pink, fine t slightly dense, saturated.	o coarse, well g	ıraded,		SP	6,8,9,8	2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1

TITLE: Naval Air Station Whiting Field	LOG of WELL: WHA	-3-7D	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM	· · · · · · · · · · · · · · · · · · ·		PROJECT NO: RI PHASE	E IIA
CONTRACTOR: Groundwater Protection Inc	. DATE STA	ARTED: 5/22/93	COMPLTD: 5/25	/93
METHOD: MUD ROTARY C	ASE SIZE: 2" SCREEN I	SCREEN INT: 175-180 FT		
TOC ELEV.: 173.44 FT. M	ONITOR INST: FID/OVA TOT OPTH	1: 180FT.	DPTH TO ¥ 104.81 FT.	
LOGGED BY: M. Lieberman, E. Blomberg W	ELL DEVELOPMENT DATE:		SITE: 3	
DEPTH THE ADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 4	LITHOLOGIC SYMBOL	SOIL CLASS NI-9/SMOTB	WELL DATA
7	- pink, same as above.		SP 19,27,31,28	
85—				7 2 7 2 7 2 7
70				
	- light pink to tan, fine to medium, poorly , dense, saturated.	7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	SP 28,24,21,21	
75— 12 SAND - 1.0/2.0 saturat	red, fine to coarse, well graded, dense ed.	• • •	SW 28,37,45,47	
30—				
35—				
15—				

TITLE: Naval Air Station Whiting F	ield	LOG of	F WELL: WHF-3-7I		BOR	ING NO.	***************************************
CLIENT: SOUTHNAVFACENGCOM					PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protec	ction Inc.		DATE STARTED: 5	/24/93		COMPLTD: 5/26/	93
METHOD: MUD ROTARY	CASE SIZE: 2"		SCREEN INT.: 135	-140 FT	PROT	ECTION LEVEL: D	<u> </u>
TOC ELEV.: 173.45 FT.	MONITOR INST.: FID/	OVA	TOT DPTH: 140FT.		DPTH	TO ¥ 104.76 FT.	
OGGED BY: M. Lieberman	WELL DEVELOPMENT	DATE:		•	SITE:	: 3	
DEPTH T.T. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	TION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 10— 15— 20— 30— 40— 45— 50—	SEE WHF-3-2S FOR LOCAL DESCRIPTIONS.	L LITHOL	OGICAL				
	l PAGE	1 of 31	MW7I ABB E	NVIRO	MEN.	TAL SERVICES.	INC.

FITLE: Naval Air Station Wh	iting Field		LOG of WE	ELL: WHF-3-7I		BOR:	ING NO.		
CLIENT: SOUTHNAVFACENC	COM					PRO	JECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater	Protection	Inc.	ם	ATE STARTED: 5	/24/93		COMPLTD: 5/26	/93	
METHOD: MUD ROTARY		CASE SIZE: 2"	S	CREEN INT.: 135	-140 FT	PROT	ECTION LEVEL: D		
FOC ELEV.: 173.45 FT.		MONITOR INST.: FID/	OVA T	OT DPTH: 140FT.		DPTH	TO ♀ 104.76 FT.		
OGGED BY: M. Lieberman		WELL DEVELOPMENT	DATE:			SITE:	3		
SAMPLE SAMPLE	HEADSPACE (ppm)	soil/Rock C AND COI Continued f	MMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
55— 60— 65— 65— 60— 65— 60— 65— 60— 60— 60— 60— 60— 60— 60— 60— 60— 60									

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-3-7I	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection In	nc.	DATE STARTED: 5/24/93	COMPLTD: 5/26/93	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 135-140 FT	PROTECTION LEVEL: D	
TOC ELEV.: 173.45 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 140FT.	DPTH TO ¥ 104.76 FT.	
	WELL DEVELOPMENT DATE:		SITE: 3	
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	THO!	SOIL CLASS	אברר טאוא
105	(— light brown to light gray, som ticity, Bottom 0.5 ft, highly plast (— purple to light brown to gray tic.	ne silt, low	7,6,7,9 7,14,18,23	
115—				
130— 135— 4 SANG	J — tan, fine to medium, poorly g	readed dease to	27,33,49,50+	
JAINL SAINL	dense, saturated.	graded, dense to	SP 27,33,49,30 *	
150—	PAGE 3 of 3M	IW7I ABB ENVIRO	NMENTAL SERVICES, IN	C.

					···		+	···	
IENT: SOUTHNAVFA	CENGCOM			<u></u>	·		PROJ	ECT NO: RI PHASE	IIA
NTRACTOR: Groundw	ater Protec	tion Inc.	·	DATE ST	ARTED: 6	/03/93		COMPLTD: 6/13/	93
THOD: MUD ROTARY		CASE SIZE: 2"		SCREEN	INT.: 113-	·123 FT	PROTE	ECTION LEVEL: D	***
C ELEV.: 173.46 FT.		MONITOR INST.: FI	D/OVA	TOT DPTI	H: 125FT.		DPTH	TO ¥ 104.96 FT.	
GGED BY: N. Roka	<u> </u>	WELL DEVELOPMEN	T DATE:				SITE:	3	
L LABORATORY AND SO	RECOVERY HEADSPACE (ppm)		K DESCRIPT COMMENTS	ION		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	H H	SEE WHF-3-2S FOR LOC DESCRIPTIONS.	CAL LITHOL	OGICAL			35		

	on Whiting Fiel		LOG of	WELL: WHF-3-7S		BORIN	IG NO.	
CLIENT: SOUTHNAVFA	CENGCOM					PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Ground	water Protecti	on Inc.		DATE STARTED: 6	/03/93		COMPLTD: 6/13/	93
METHOD: MUD ROTARY	•	CASE SIZE: 2"		SCREEN INT.: 113	-123 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 173.46 FT.		MONITOR INST.: FID	/0VA	TOT DPTH: 125FT.		DPTH 1	ro ⊈ 104.96 FT.	
LOGGED BY: N. Roka		WELL DEVELOPMENT	DATE:			SITE:	3	
DEPTH L LABORATORY SAMPLE ID. SAMPLE	RECOVERY HEADSPACE (ppm)		COESCRIPT		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
70—	00/24 24/24 24/24 21/24	NO RECOVERY CLAY - light tan with graplasticity, stiff, damp, lift CLAYEY SAND - gray wifirm, moderately dense, r SILTY SAND - light tan, subrounded.	ay mottled ttle silt. th some mo	, red streaks, low ottle brown, fine, et.		CH CL SC SP	8,10,16,20 10,12,15,21 15,17,17,22 22,22,30,24	

ITLE: Naval Air Station Wh			LOG of	WELL: WH	F-5-8D		BOR	ING NO.	
LIENT: SOUTHNAVFACEN	СОМ						PROJ	JECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater	Protection	Inc.		DATE ST	ARTED:	4/23/93		COMPLTD: 4/24	/9.3
ETHOD: Mud Rotary		CASE SIZE: 2"		SCREEN	INT.: 169	9.5' - 179.	'PROT	ECTION LEVEL: Mo	dified D
OC ELEV.: 178.00 FT.		MONITOR INST.: FIC	3	TOT DPT	H: 179.5F	т.	DPTH	TO ♀ 111.99 FT.	,
OGGED BY: S. Consalvi		WELL DEVELOPMENT	DATE:				SITE:	: 5	
F T	HEADSPACE (ppm)		COMMENTS	ION	·.	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		E WHF-5-8S FOR LITH	HOLOGICAL	DATA					

	al Air Sta				LOG of	WELL: WHF-5-8D			NG NO.	
CLIENT: SO								PROJ	ECT NO: RI PHASE	
CONTRACT		dwater	Protection			DATE STARTED:			COMPLTD: 4/24	
METHOD: M				CASE SIZE: 2"					CTION LEVEL: Mo	diffed D
TOC ELEV.				MONITOR INST.: FID		TOT DPTH: 179.51	= T.		TO ♀ 111.99 FT.	· · · · · · · · · · · · · · · · · · ·
LOGGED B	': S. Cons	alvi		WELL DEVELOPMENT	DATE:			SITE:	5	
DEPTH FT. MWS FT.	RATORY AND LE ID. S	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
50										

CONTRACTOR: Groundwater Protection Inc. DATE STARTED: 4/23/93 COMPLTD: 4/24/93 CO	ITLE: Naval Air Station Whiting Field		LOG of	WELL: WHF-5-8D		BORIN	NG NO.		سر
METHOD: Mod Rotary CASE SIZE: 2" SCREEN INT.: 189.5' - 179. 9 PROTECTION LEVEL; Modified D TOC ELEV.: 178.00 FT. MONITOR INST.: FID TOT OPTH: 179.5FT. DPTH TO TO THE TO TO THE THE TO TH	IENT: SOUTHNAVFACENGCOM					PROJE	CT NO: RI PHASE	IIA	,
TOC ELEV.: 178.00 FT. LOGGED BY: S. Consalvi WELL DEVELOPMENT DATE: SITE: 5 LABORATORY AND COMMENTS SAMPLE ID. 95 Continued from PAGE 2 DETAILS SHOWS FT. DPTH TO Q 11.99 FT. SITE: 5 BLOWS/6-IN SOL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2	ONTRACTOR: Groundwater Protection	n Inc.		DATE STARTED: 4	/23/93		COMPLTD: 4/24	/93	
LOGGEO BY: S. Consolvi MELL DEVELOPMENT DATE: SITE: 5 SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 100 105 105	ETHOD: Mud Rotary	CASE SIZE: 2"		SCREEN INT.: 169	.5' - 179.	5' PROTE	CTION LEVEL: Mo	dified D	
EL LABORATORY ENGINEER IN SOUL/ROCK DESCRIPTION AND COMMENTS CONTINUED FROM PAGE 2 110 110 115	OC ELEV.: 178.00 FT.	MONITOR INST.: FID		TOT DPTH: 179.5F	Т.	DPTH T	TO ¥ 111.99 FT.		ı
95—	OGGED BY: S. Consalvi	WELL DEVELOPMENT	DATE:			SITE:	5		
95—	SAMPLE SAMPLE FECOVERY (ppm)	AND CO	MMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
NA CLAYEY SAND/SANDY CLAY (interbeded) - maroon interbeded with yellow orange and light yellow, fine grained, trace to no silt, (Top 1.4'); saturated; over sand, off white, fine grained. PAGE 3 of 5MW8D ABB ENVIRONMENTAL SERVICES, INC.	5— 1 0— 1 5— 1 1 0— 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LAYEY SAND/SANDY CLA iterbeded with yellow ora rained, trace to no silt, (1	AY (intertange and Top 1.4');	beded) – maroon light yellow, fine saturated; over		SC	22,26,31,29		

TOC ELEV.: 178.00 FT. MONITOR INST.: FID TOT DPTH: 179.5FT. DPTH TO \$ III.99 FT. MONITOR INST.: FID TOT DPTH: 179.5FT. DPTH TO \$ III.99 FT. MONITOR INST.: FID TOT DPTH: 179.5FT. DPTH TO \$ III.99 FT. DESCRIPTION BELL DEVELOPMENT DATE: SITE: 5 LABORATORY BELL DEVELOPMENT DATE: SOIL/ROCK DESCRIPTION DE	ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-8D	BORING N	10.	
CASE SIZE: 2" SCREEN INT.: 169.5" - 179.5" PROTECTION LEVEL: Modified 0 TOC ELEV.: 178.00 FT. MONITOR INST.: FID TOT DPTH: 179.5FT. DPTH TO \$ 18.99 FT.	LIENT: SOUTHNAVFACENGCOM			PROJECT	NO: RI PHASE II	А
MONITOR INST: FID	ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/23/93	C	OMPLTD: 4/24/93	3
MA Same as above (0.41), V. pale red of medium SP 18.19.22.15	ETHOD: Mud Rotary	CASE SIZE: 2"	SCREEN INT.: 169.5' - 179	9.5'PROTECTI	ON LEVEL: Modifi	ied D
SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. SP 38,50,40,42	OC ELEV.: 178.00 FT.	MONITOR INST.: FID	TOT DPTH: 179.5FT.	DPTH TO	7 111.99 FT.	
SAND - v. pale red to light tan, fine grained dry, firmly packed, poorly graded, wet. SAND - red to pale red, fine and very fine graines, poorly graded, wet. SAND - pale orange, fine grained, dense, trace gravel, wet. SAND - pale orange, fine grained, dense, trace gravel, wet. SAND - pale orange, fine grained, dense, trace gravel, wet. SAND - pale orange, fine grained, dense, trace gravel over CLAYEY SAND (0.41), V. pale red, no gravel over CLAYEY SAND (0.41), V. pale grey with interbeded red layers. SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated slit (bockets).	OGGED BY: S. Consalvi	WELL DEVELOPMENT DATE:		SITE: 5		
firmly packed, poorly graded, wet. NA SAND - red to pale red, fine and very fine graines. SP 27.28.33.37 D.8/2 NA SAND - pale orange, fine grained, dense, trace gravel, wet. SS 27.28.33.37 O.8/2 NA Same as above (0.4°), v. pale grey with interbeded red layers. NA SAND - v. pale red and pale red, fine to medium grained, overiain by medium to coarse sand, wet. NA SAND - v. pale grey with interbeded red fine to medium grained, overiain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated sitt (pockets).	SAMPLE SAMPLE (Ppm)	AND COMMENTS	E SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
NA SAND - pale orange, fine grained, dense, trace gravel, wet. SP 37,39,42,38 37,39,42,38 37,39,42,38 Same as above (0.4'), V. pale red, no gravel over CLAYEY SAND (0.4'), V. pale grey with interbeded red layers. NA SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated sit (pockets). NA Same as above, light tan to baige, trace coarse			e grained dry,	SP		
NA SAND - pale orange, fine grained, dense, trace gravel, wet. NA Same as above (0.4'), V. pale red, no gravel over CLAYEY SAND (0.4'), V. pale grey with interbeded red layers. NA SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated sitt (pockets). NA Same as above, light tan to baige, trace coarse 99 41,48,>50	0.8/2 poo		ry fine graines,	SP	27,28,33,37	
NA Same as above (0.4'), V. pale red, no gravel over CLAYEY SAND (0.4'), V. pale grey with interbeded red layers. NA SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated sitt (pockets). NA SAND - light tan to baige, trace coarse SP 41.48,>50	O NA SAN		ense, trace	SP	37,39,42,38	
NA SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet. NA SAND - light tan, fine grained, sub-rounded, trace red consolidated silt (pockets). NA Same as above, light tan to baige, trace coarse SP 18,19,22,15	0.8/2 CLA	AYEY SAND (0.4'), V. pale grey		SP	42,49,50,R	
red consolidated silt (pockets).	SAI NA SAI	ND - v. pale red and pale red, fi		SP	18,19,22,15	
NA Same as above, light tan to baige, trace coarse SP 41,48,>50	JAN JAN		rounded, trace	SP	38,50,40,42	
sand.	30		race coarse	SP	41,48,>50	

ITLE: Naval Air Station Whiting Field	L0G o	f WELL: WHF-5-8S	S	BORI	NG NO.		
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater Protection Inc.		DATE STARTED:	3/21/93		COMPLTD: 3/23/93		
ETHOD: Hollow Stem Auger CASE SIZE: 2"		SCREEN INT.: 110' - 125'			CTION LEVEL: D		
OC ELEV.: 177.73 FT. MONITOR INST.: F	FID/OVA	D/OVA TOT DPTH: 125FT.			TO ♀ 110.91 FT.		
OGGED BY: Richard Nelson WELL DEVELOPME	NT DATE:			SITE:	5		
	OCK DESCRIP D COMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5—20/24 O SAND - light brown, fir moist, trace silt.	ne to medium	, poorly graded,		SP	2,3,8,7		
0 SAND - reddish brown medium, poorly graded,				SP	4,6,12,12	4 4 4 4	
5— NA CLAY - grey and pinki.	sh red, stiff,	plastic, dry.		СН	6,7,10,17		
O Same as above (Top 6 poorly graded, with this				CH/SP	4,7,9,12		
5 O SAND - grey, yellow at wet.	nd tan, fine,	poorly graded,		SP	7,6,6,10		
0 SAND - white, fine, 1/2	' yellow band	d at 31', dry.		SP	7,11,10,11		
5— 0 CLAY (Top 4")- grey, SAND - white, fine, por				CH/SP	9,8,7,9		
0 Same as above.				SP	10,9,10,9		
5				SP /	8,8,8,9		

TITLE: Naval Air Station Whiting Fi	eld	LOG of WELL: WHF-5-	-8\$	BORING	3 NO.	
CLIENT: SOUTHNAVFACENGCOM				PROJEC	T NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protec	tion Inc.	DATE START	ED: 3/21/93	COMPLTD: 3/23/93		
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.	: 110' - 125'	PROTECTION LEVEL: D		
TOC ELEV.: 177.73 FT.	MONITOR INST.: FID/	DVA TOT DPTH: 12	5FT.	DPTH TO ¥ 110.91 FT.		
LOGGED BY: Richard Nelson	WELL DEVELOPMENT	DATE:		SITE: 5		
DEPTH TI. FI. SIMPLE SAMPLE RECOVERY HEADSPACE (ppm)		DESCRIPTION MMENTS From PAGE 1	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
12/24	SAND - white, fine, poorly			SP		
50 12/24	Same as above, with pink, y banding.	yellow and reddish oran	ge	SP	10,14,14,18	
55	SAND – pink and white ban graded, dry.	ded, fine to medium, po	orly	SP	10,15,14,19	
20/24				SP	7,6,12,15	
0 16/24	SAND - white, fine, poorly	graded, dry.		SP	7,10,14,20	
70	Same as above.			SP	12,14,12,15	
75 - 20/24	Same as above.			SP	17,28,40,52	
80 - 18/24	Same as above, with reddibanding.	sh brown and yellow		SP	18,28,32,34	
85 - 20/24	SAND - white, fine, poorly	graded, dry.		SP	17,18,24,27	
90 0				SP	22,19,22,37	

TITLE: Naval Air Station Whiting Field	LOG o	f WELL: WHF-5-8S	BORIN	IG NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection I	Inc.	DATE STARTED: 3/21/9	3	COMPLTD: 3/23/	93
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 110' - 12	protei	CTION LEVEL: D	
TOC ELEV.: 177.73 FT.	MONITOR INST.: FID/OVA	TOT DPTH; 125FT.	DPTH T	TO ¥ 110.91 FT.	
LOGGED BY: Richard Nelson	WELL DEVELOPMENT DATE:		SITE: 5	5	
DEPTH F 1. SAMPE SAMPE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
95— 20/24	e as above. D - yellow brown, fine to mediu	m, poorly graded, ium, poorly graded, illow and light	SP SP SP SP	18,22,26,34 14,15,12,14 10,12,17,17 10,8,10,20 3,5,14,18 14,16,16,14 6,15,18,17	
135					-
	PAGE 3 of 5M	IW8S ABB ENVI	RONMENTA	AL SERVICES.	INC.

TITLE	: Naval Ai	r Stati	ion Whit	ing Fie	eld .	LOG of	WELL: WHF-5-9D		BOR	ING NO.	
CLIEN	IT: SOUTH	INAVE	ACENGO	СОМ					PRO	JECT NO: RI PHASE	IIA
CONT	RACTOR:	Ground	water F	rotec	tion Inc.		DATE STARTED:	4/21/93		COMPLTO: 4/22	/93
4ETH	OD: MUD F	ROTAR	Y		CASE SIZE: 2"		SCREEN INT.: 17	0, – 180,	PROT	ECTION LEVEL: MO	dified D
TOC E	LEV.: 176	.35 FT			MONITOR INST.: FID	/OVA	TOT DPTH: 180FT		DPTH	TO ¥ 111.47 FT.	
.0GG	ED BY: G	. Kanci	hibhatla	3	WELL DEVELOPMENT	DATE:			SITE	5	
DEPTH FT.	LABORATO SAMPLE I	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—				0 3							
25—			1/1	0	SAND - pink and white, v	ery fine to	o fine.	-	SP	2,2,6,13	
30 			1.7/2	- 0	CLAYEY SAND (4") - Iow fine, poorly graded.	ı plasticity	. SAND – white,		SP	14,16,23,28	
35—			1.5/2	- 0	Same as above.				SP	11,13,17,20	
40	.			0			•		SP ,	5,19,22,27	

TITLE: Naval Air Station Whiting Field	L06 d	of WELL: WHF-5-9D	BORIN	IG NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/21/93		COMPLTD: 4/22/93		
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170' - 180'	PROTECTION LEVEL: Modified D			
OC ELEV.: 176.35 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180FT.	DPTH T	O 및 111.47 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5	5		
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from P	THOI SYME	SOIL CLASS	BLOWS/6-IN	WELL DATA	
	me as above.		SP			
5— 0 Sa	me as above.		SP	5,17,14,19		
0 Sal	ne as above.		SP	6,12,15,21		
5— 0 Sal	ne as above.		SP	9,18,18,22		
0 Sal	me as above.		SP	5,13.19.23		
5— 0 Sal	ne as above.		SP	14,20,23,27		
	me as above (Top 10"). CLAY (sticity. SAND (5") – white and		SP	12,9,20,23		
5—————————————————————————————————————	me as above.		SP	19,23,27,30		
			SP	19,24,27,35		

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-9D	BOR	ING NO.	·
LIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/21	/93	COMPLTD: 4/22/	93
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170' -	180' PRO T	ECTION LEVEL: Mo	dified D
OC ELEV.: 176.35 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180FT.	DPTH	TO ¥ 111.47 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE	: 5	
DEPTH DEPTH SAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 2	SOIL CLASS	BLOWS/6-IN	WELL DATA
] Sa	me as above.		SP		
1.5/2		· · · · · · · · · · · · · · · · · · ·			
35— - - - - - - - - - -	ND – white and pink, very fine to	fine, trace silt.	SP	12,20,17,26	
90— 1.5/2 0 Sa	me as above - yellow.		SP	WR,WR,31,29	
95— - - 1.3/2 0 Sa	nme as above – yellow to white, w	et.	SP	WR.WR,29,33	
0 Si	ame as above.		SP	17,19,27,28	
05 — 0 CI	.AY - brown, stiff to medium stiff,	wet.	CL	2,4,6,8 4,6,8,9	
2/2 0 S	.AY – dark grey, stiff, plastic, mo ame as above (1'). CLAY – light o irgandy and light tan mottling, sti	orange with	CH	Pushed	
115 0 S	ame as above, trace silt, less stif	f. [=]	CH	4,6,8,10	
0 s	ame as above, some silt, stiff, tra onsolidated silt (color is same as			9,15,14,16	
120		.	SP	14,19,24,16	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-9D	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO	: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/21/93	COMP	PLTD: 4/22/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170' - 180'	PROTECTION	LEVEL: Modified D
TOC ELEV.: 176.35 FT.	MONITOR INST.: FID/OVA	TOT OPTH: 180FT.	DPTH TO ♀ 11	1.47 FT.
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5	
DEPTH FT. ST. GIAMPS GIAMPS SAMPLE SAMPLE SAMPLE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA(THOI SYM	SOIL CLASS	MELL DATA
	ND – off-white to pink, fine, poor wn layering, trace silt, saturated		SP	
35— 	me as above, with 2" thich clay li ep), same clay as 117". ND - off-white to light brown, fin ained, trace to no silt, angular.	ne to medium	54	28,26,31
45— - 50— 0 Sa	me as above, bottom 2" light orai	nge.	SP 37,	39,43,52
155—				
60			SP 37	,33,42,49

IILE. NO	al Air Stat	LIOH WIN	ungra		LOG of	WELL: WHF-5-9D		BORI	NG NO.	
LIENT: S	DUTHNAVE	ACENG	СОМ		-	·		PROJ	ECT NO: RI PHASE	IIA
CONTRACT	OR: Ground	twater i	Protec	tion Inc.		DATE STARTED: 4	/21/93		COMPLTD: 4/22	/93
METHOD: M	UD ROTAR	Υ		CASE SIZE: 2"		SCREEN INT.: 170	' - 180'	PROTECTION LEVEL: Modified D		
OC ELEV.	: 176.35 F.T	- -		MONITOR INST.: FID.	/OVA	TOT OPTH: 180FT.		DPTH	TO ¥ 111.47 FT.	
OGGED B	Y: G. Kanc	hibhatla	3	WELL DEVELOPMENT	DATE:			SITE:	5	
E LABO	RATORY HI PLE ID. W	RECOVERY	HEADSPACE (ppm)	SDIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]		1.2/2]	Same as above (10"), light overlaied by clay (4") light				SP		
+		<u> </u>		orange mottles, some silt i plastic.	in small le	nses, stiff,				
]										
35									•	
+										
-										
70—		/	0	SAND - light tan to light t				SP	24,26,23,27	
		1.4/2		sub-rounded to sub-anguation (bottom 4"), white, sub-re		coarse sand				
4										
75—		1.4/2	0	SAND - light tan to light t fines, dense, some coarse sub-angular.				SP	36,51,-,~	
4										
				·				.		
30-										
4										
+										
85—										
+										
								į		
90—										
+										
95—										
+										
1										
4						-				
。—		1					1 1	-		

TITLE: Naval Air Station	Whiting Field		LOG o	F WELL: WHF-5-9S		BORI	NG NO.		
CLIENT: SOUTHNAVFACE	NGCOM					PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwa	ter Protection	Inc.		DATE STARTED: 4	/22/93		COMPLTD: 4/25	/93	
METHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.: 119-	-129'	PROTECTION LEVEL: Modified D			
TOC ELEV.: 175.83 FT.		MONITOR INST,: FIL	: FID/OVA TOT DPTH: 131FT.			DPTH	TO ♀ 111.47 FT.		
OGGED BY: G. Kanchibb	natla	WELL DEVELOPMEN	T DATE:			SITE:	5		
L LABORATORY L L L LABORATORY L L L L L L L L L L L L L L L L L L L	RECOVERY HEADSPACE (ppm)		K DESCRIPT COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5		WHF-5-9D FOR LIT	HOLOGICAL	DESCRIPTIONS.					

	106 01	WELL: WHF-5-9S	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	IIA ·	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/22/93	COMPLTD: 4/25/	93	
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 119-129'	PROTECTION LEVEL: Mod	dified D	
OC ELEV.: 175.83 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 131FT.	OPTH TO ¥ 111.47 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:	<u> </u>	SITE: 5		
SAMPLE SAMPLE FECOVERY: (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS Brom2/e-IN	WELL DATA	
35— 					

ITLE: Naval Air Station Whiting Field	LOG of	F WELL: WHF-5-9S	BORING N	٥.	
LIENT: SOUTHNAVFACENGCOM			PROJECT I	NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/22/93	CO	MPLTD: 4/25/93	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 119-129'	PROTECTIO	ON LEVEL: Modified D	
ΓΟC ELEV.: 175.83 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 131FT.	DPTH TO ¥ 111.47 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5		
DEPTH FT. FT. GIGLARAGE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	r HOI	SOIL CLASS	WELL DATA	
95— - - - - - - - - - - - - - - - - - - -					
	ND – yellow-orange to pale yed, derately dense, saturated.	, fine, tract silt,	SP 22	2,38,49,26	
	ND - SAA, fine saturated, lenses stic; moist, mottled	sandy clay,	SP 12	2,14,32,46	
30					

ITLE: Naval Air Statio		A	LOG of	WELL: WHF-5-10D		ļ	NG NO.	
LIENT: SOUTHNAVFA			=	T		PROJ	ECT NO: RI PHASE	
ONTRACTOR: Groundy				DATE STARTED: 4			COMPLTD: 4/12/	93
ETHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.: 170			CTION LEVEL: D	
OC ELEV.: 184.55 FT.		MONITOR INST.: FID/	OVA	TOT DPTH: 180.5F				
OGGED BY: G. Kanch		WELL DEVELOPMENT	DATE:			SITE:	5	
L LABORATORY & WEST	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	TION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	N/A	SEE WHF-5-10S FOR ADD DESCRIPTIONS.	ITIONAL	LITHOLOGICAL				
35							,	

TLE: Naval Air Station Wh	iting Field		LOG of WELL: WH	F-5-10D	BORI	NG NO.	
IENT: SOUTHNAVFACENG	COM				PROJE	ECT NO: RI PHASE	IIA
NTRACTOR: Groundwater	Protection	Inc.	DATE ST	ARTED: 4/11/93	-	COMPLTD: 4/12/	93
THOD: MUD ROTARY		CASE SIZE: 2"	SCREEN	INT.: 170-180 FT	PROTE	CTION LEVEL: D	
C ELEV.: 184.55 FT.		MONITOR INST.: FID/	OVA TOT DPT	H: 180.5FT.	DPTH	TO ♀ 121.37 FT.	
GGED BY: G. Kanchibhati	la	WELL DEVELOPMENT	DATE:		SITE:	5	
SAMPLE OI 314WS FT.	HEADSPACE (ppm)		DESCRIPTION MMENTS FOM PAGE 1	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-10D	BORI	BORING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE	E IIA	
CONTRACTOR: Groundwater Protection I	Inc.	DATE STARTED: 4/11/93	3	COMPLTD: 4/12.	/93	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180	FT PROTE	CTION LEVEL: D		
TOC ELEV.: 184.55 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180.5FT.	DPTH	TO ¥ 121.37 FT.		
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE:	5		
GEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	至	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
97—						
24/24 0/0 Sam	AY — black, medium stiff, plastic. The as above, dark gray. The as above, olive gray, trace satisfy a pale yellowish orange and public dium stiff, lenses of very fine same as above. The as above.	ourple, mottled,		5,7,7,12 10,10,10,15 10,8,10,11 7,6,9,11 7,8,9,12 5,5,8,12 21,28,31,31		
- IB/24 SAN	ND - reddish brown to yellowish of te on bottom, fine to trace medicurated.		SP			

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-10D	HF-5-10D BORING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJEC	T NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/11/93		COMPLTD: 4/12/93	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT	PROTEC	TION LEVEL: D	
FOC ELEV.: 184.55 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180.5FT.	DPTH TO) 및 121.37 FT.	
.0GGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5		
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	THO	SOIL CLASS	MELL DATA	
22/24 gr	AND — light tan, medium to trace co aded, saturated.	parse, poorly	SP	20,17,14,?	
00/24 NA S/	AY — yellowish orange to pale purellowish orange, fine sand lenses (AND — pinkish white, fine to trace raded, saturated. DRECOVERY		19,86,94,92		
0/<1 S,	AND – light tan to pinkish white, fin ace coarse, poorly graded, satura		SP	20,20,21,26	
8 CI	ANDY CLAY — gray and pink mottlin AYEY SAND — light pink to gray. AND — pinkish white, very fine to fi		SC SP	5,23,31,32	
- gr	aded, saturated.		SP	25,38,40,49	
8— 0/<1 Si	ame as above.		SP	32,54,50,?	
8/24	AND – tan, fine, poorly graded, sal		SP	17,17,29,22	
18/24 0/0 S.	AND — tan, fine, poorly graded, sai	turated.	SP	23,40,36,32	
33—					

TITLE: Naval A	ir Stat	ion' Whit	ing Fie	eld	LOG of	FWELL: WHF-5-10S		BORI	ING NO.	
CLIENT: SOUTH	INAVE	ACENGO	СОМ					PROJ	ECT NO: RI PHAS	EIIA
CONTRACTOR: (Ground	water F	rotec	tion Inc.		DATE STARTED: 4	/13/93		COMPLTD: 4/25	5/93
METHOD: MUD F	ROTAR	Y		CASE SIZE: 2"		SCREEN INT.: 130-	-140 ft.	PROTE	ECTION LEVEL: D	
TOC ELEV.: 184	.21 FT.			MONITOR INST.: FIC	D/OVA	TOT DPTH: 140FT.		DPTH	TO ♀ 121.03 FT.	
LOGGED BY: G				WELL DEVELOPMENT	DATE:			SITE:	5	
L LABORATO	SAMPLE	RECOVERY	HEADSPACE (ppm)		K DESCRIPT COMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		20/24	0	SAND - reddish brown, fi	ine, silty, lo	ow plasticity.		SP	3,4,4,3	
10 —	7	22/24	0	Same as above.				SP	3,3,3,5	
15—	7	18/24	0	Same as above.				SP	1,6,5,9	
20—		20/24	0	Same as above.				SP	4,6,8,7	
25—		22/24	0	Same as above, more co	arse sand,	less silt.		SP	6,8,13,14	
30		18/24	0	SILTY SAND (Top 3") - CLAY (6") - purple, low - white and pink, very fit	plasticity.	SILTY SAND (9")		SP	5,4,14,17	
35—		18/24	0	CLAY (TOP 6") - grey, white and reddish brown				SP	8,12,15,15	
40			0					SP /	13,13,11,10	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-5-10S	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	E IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 4/13/93	COMPLTD: 4/25	5/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 130-140 ft.	PROTECTION LEVEL: D	
ΓΟC ELEV.: 184.21 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 140FT.	DPTH TO ¥ 121.03 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5	-
SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	THO!	SOIL CLASS NI-e-s/smore	WELL DATA
SA	ND — light purple, fine grained, litt AY (16") — low plasticity.		SP	
15— - 724/24 0 SA silt	ND — grey and purple, fine to ver y.	y fine grained,	5,12,10,13	
0 Sa	me as above.		SP 5,17,10,12	
0 Sa	me as above.		SP 10,13,17,20	
0 Sa	me as above, no silt, trace gravel		SP 10,13,16,15	
0 Sa	me as above, with silt.		SP 9,14,17,16	
0 Sa	me as above, no silt.		9,15,23,26	
75— 1 Sa	me as above.		SP 14,28,26,25	
			12,23,40,44	

			LOG of WELL: WHF-5-10S		BORING NO.		
CLIENT: SOUTHNAY	FACENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Grou	ndwater Protect	ion Inc.	DATE STARTED): 4/13/93		COMPLTD: 4/25	/93
METHOD: MUD ROTA	IRY	CASE SIZE: 2"	SCREEN INT.:	130-140 ft.	PROTE	CTION LEVEL: D	
TOC ELEV.: 184.21 F	т.	MONITOR INST.; F	ID/OVA TOT DPTH: 140	FT.	DPTH 1	TO ♀ 121.03 FT.	
LOGGED BY: G. Ka	nchibhatla	WELL DEVELOPMEN	NT DATE:		SITE:	5	
DEPTH DEPTH TITE SAMPLE SAMPLE HEADSPACE (ppm)		AND	CK DESCRIPTION COMMENTS d from PAGE 2	LITHOLDGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	18/24	Same as above.			SP		
85—	18/24	Same as above.			SP	13,30,32,50	
90-	16/24	CLAY (Top 3 ") - grey, (13") - Same as 85' to	medium plasticity. SAND 87' interval.		SP	12,25,32,28	
95—	18/24	SAND - white, fine grain	ned, poorly graded, dry.			14,17,19,24	
100	18/24	Same as above.			SP	11,17,19,23	
105—	18/24	Same as above (Top 10 (6").	3"), moist over reddish pink		SP	12,9,14,12	
110	0/24 NA	No Recovery				3,5,11,11	27 27 27 27 21
115	0 18/24 0 20/24	CLAY - black, medium s Same as above.	tiff, plastic.		СН	10,10,10,12	
115	18/24 0		tiff, plastic.				1

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TITLE: Naval Air Station Whiting Field		LOG of WELL: WHF	-5-10S	BORING NO	o.	
CLIENT: SOUTHNAVFACENGCOM				PROJECT N	NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STA	RTED: 4/13/93	со	MPLTD: 4/25/	/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN II	NT.: 130-140 ft.	PROTECTIO	IN LEVEL: D	
TOC ELEV.: 184.21 FT.	MONITOR INST.: FID/OV	A TOT DPTH	: 140FT.	ртн то ӯ	121.03 FT.	
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DA	TE:	***************************************	SITE: 5	· · · · · · · · · · · · · · · · · · ·	
DEPTH FT. SAMPLE SAMPLE Gpm)	SOIL/ROCK DE AND COMM Continued fro	MENTS	LITHOLOGIC	SOIL CLASS	LOWS/6-IN	WELL DATA
25— 30— 0 CLA	AY (1') – dark olive grey, s	soft, plastic, wet, li			2,28,36,31	
35 0 SAI	. CLAYEY SAND — brownis white, pale red purple and ND — light tan to very pale , saturated.	d pale yellow, tracı	e silt.	SP 2	7,22,26,23	
45—						
55						
60—		of 5MWIOS	ABB ENVIRO			

ITLE: Naval Air Station W			LOG of	WELL: WHF-6-1D			NG NO.	
LIENT: SOUTHNAVFACEN	GCOM					PROJ	ECT NO: RI PHASE	
ONTRACTOR: Groundwate	r Protection	Inc.		DATE STARTED: 5			COMPLTD: 5/19,	
ETHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.: 175	-180 FT.	PROTE	ECTION LEVEL: MC	odified D
OC ELEV.: 177.79 FT.		MONITOR INST.: FIE)	TOT DPTH: 180FT.		DPTH	TO ¥ 116.44 FT.	
OGGED BY: S. Consalvi		WELL DEVELOPMENT	T DATE:			SITE:	6	
SAMPLE SAMPLE	HEADSPACE (ppm)		K DESCRIPT COMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	8LOWS/6-IN	WELL DATA
5	SE	E WHF-6-SB-3 FOR L	.ITHOLOGI	CAL				

ITLE: Naval Air Statio		LOC	of WELL: WHF-6-	1D	BORII	NG NO.	
LIENT: SOUTHNAVFAC	CENGCOM				PROJE	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwa	ater Protect	tion Inc.	DATE STARTE	D : 5/7/93		COMPLTD: 5/19/	/93
ETHOD: MUD ROTARY		CASE SIZE: 2"	SCREEN INT.:	175-180 FT.	PROTE	CTION LEVEL: Mo	dified D
OC ELEV.: 177.79 FT.		MONITOR INST.: FID	TOT DPTH: 180	FT.	DPTH	TO ♀ 116.44 FT.	
OGGED BY: S. Consalv	vi	WELL DEVELOPMENT DATE:			SITE:	6	
LABORATORY	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCE AND COMMEN Continued from	TS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	0	SAND - greyish pink, fine, moder banding, poorly graded.			SP	23,32,38,50	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-6-1D	BORING	NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJEC	T NO: RI PHASE I	IA ·
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/7/93		COMPLTD: 5/19/93	3
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 175-180 F	T. PROTECT	TION LEVEL: Modi	fied D
TOC ELEV.: 177.79 FT.	MONITOR INST.: FID	TOT DPTH: 180FT.	DPTH TO) 및 116.44 FT.	
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE:		SITE: 6		
DEPTH F T. F T. GAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	11HOI	SOIL CLASS	BLOWS/6-IN	WELL DATA
)	ne as above, very pale orange, o own banding.		SP	16,17,35,41	
02— 14/24 ye	ND – greyish orange, light brown lowish orange (top 8"), slightly n ry pale orange with light brown a ange banding.	ioiste; bottom 8"	SP	12,25,35,38	
	ND — dark yellow orange (5"), fir ttom 13 " greyish orange pink, we		SP	14,22,36,50	
112 — 24/24 0 fin so	ND (6") - very pale orange to me to medium. CLAY (18") - dark me pale yellowish brown. me as above (12"), blending into	reddish brown,	CH	7,7,10,10	
0 SA	NDY CLAY - grey, purple and ye ttling, low plasticity, medium stiff		СН	9,17,21,26	
	.ND – yellow to light grey, very f aded, medium dense, some silt, we		SP	15,37,35,50	
132					
137—				L SERVICES.	

TTLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-6-10	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	EIIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/7/93	COMPLTD: 5/19/93		
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 175-180 FT	PROTECTION LEVEL: MC	odified D	
OC ELEV.: 177.79 FT.	MONITOR INST.: FID	TOT DPTH: 180FT.	DPTH TO ¥ 116.44 FT.		
OGGED BY: S. Consalvi	WELL DEVELOPMENT DATE:		SITE: 6		
SAMPLE SAMPLE RECOVERY (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	OH1 SYM	SOIL CLASS AI-9/SMOTB	WELL DATA	
13—					
58	ame as above, light grey to pink.		SP 12,27,45,41		
-	ame as above.		38,50,50,50		
	ame as above, dense.		38,50,53,70		
-	AND -brown to tan, fine to medium	n, dense, wet.	35,44,70,80		
93—					

ALENTS SOUTHAND A CASES CONTROLOGY OF THE PROBLEM STATES STORED STORE STATES STORED AND STORE ST	ITLE: Naval Air Statio		***************************************	LOG of	F WELL: WHF-6-1S			NG NO.	TTA
ACTHOD MUD ROTARY CASE SIZE: 2" SCREEN INT.: 18-132 PROTECTION LEVEL: D. MONITOR INST.: FID TOT DPTH: 133FT. OPTH TO \$ 18.71 FT. SITE: 6 LABORATORY # 5 5 6 5 5 6 6 5 6 6 5 6 6 6 6 6 6 6 6			T		DATE STARTER:	/11/03	PROJ		
TOC ELEV: 177.81 FT. MONITOR INST:: FID TOT OPTH: 133FT. DPTH TO \$100.71 FT.		ater Protection					PROTE		
EL LABORATORY S SUPERIOR SOLL/ROCK DESCRIPTION AND COMMENTS SITE: 6 SOLL/ROCK DESCRIPTION AND COMMENTS SUPERIOR SUPERIO			7		 				v
SEE WHF-8-3 FOR LITHOLOGICAL DESCRIPTIONS. SEE WHF-8-3 FOR LITHOLOGICAL DESCRIPTIONS.					101 DP1H: 133F1.				
SEE WHF-8-3 FOR LITHOLOGICAL DESCRIPTIONS. 10— 25— 35— 40—	OGGED BY: S. Consai		WELL DEVELOPMENT	DATE.		()	1		
SEE WHF-6-3 FOR LITHOLOGICAL DESCRIPTIONS. 10— 25— 35— 40—	L LABORATORY L L L L L L L L L L L L L L L L L L L	RECOVERY HEADSPACE (ppm)			rion	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	10—		E WHF-6-3 FOR LITHO	DLOGICAL	DESCRIPTIONS.				

				6-15	BORI		
IENT: SOUTHNAVFA	CENGCOM				PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Grounds	water Protection	Inc.	DATE STAF	RTED: 5/11/93		COMPLTD: 5/20	/93
ETHOD: MUD ROTARY		CASE SIZE: 2"	SCREEN IN	T.: 118-132	PROTE	CTION LEVEL: D	
OC ELEV.: 177.81 F.T.		MONITOR INST.: FID	TOT DPTH:	133FT.	DPTH	TO ♀ 116.71 FT.	
OGGED BY: S. Consa	livi/KGK	WELL DEVELOPMENT	DATE:		SITE:	6	
LABORATORY Z	RECOVERY HEADSPACE (ppm)	AND CO	DESCRIPTION MMENTS from' PAGE 1	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
6							

	L06 of	WELL: WHF-6-1S	BORING NO.	
LIENT: SOUTHNAVFACENGCOM		D. T. OT. DTED. 5 (1) (03	PROJECT NO: RI PHASE	
ONTRACTOR: Groundwater Protectio		DATE STARTED: 5/11/93	COMPLTD: 5/20	493
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 118-132	PROTECTION LEVEL: D	
OC ELEV.: 177.81 FT.	MONITOR INST.: FID	TOT DPTH: 133FT.	DPTH TO ♀ 116.71 FT.	
OGGED BY: S. Consalvi/KGK	WELL DEVELOPMENT DATE:		SITE: 6	
RECOVERY (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO!	SOIL CLASS	WELL DATA
2—————————————————————————————————————	LAY ~ greyish orange, dark yellow oderate red mottling, stiff, medium LAY ~ grey, medium plastic, moist.	plasticity, dry.	CL 10,11,19,19 CH 0,0,27,27	
	AND — pale pink, very fine to fine, anding, moderatly dense, saturate		SP 27-2	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-6-3	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/4/93	COMPLTD: 5/7/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 109-124 FT	PROTECTION LEVEL: Modified [
TOC ELEV.: 176.14 FT.	MONITOR INST.: OVA	TOT DPTH: 124FT.	DPTH TO ¥ 114.11 FT.
OGGED BY: S. Consalvi	WELL DEVELOPMENT DATE: 6/8	3/93	SITE: 6
DEPTH FT. CIT SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	2 SYMBOL	SOIL CLASS THE SOIL CLASS AI-9/SMOTH
	NDY SILT – moderate red brown, aded.	very fine, poorly	SM 4,10,8,11
24/24	me as above, over 6" of dark yell	ow orange.	7,8,8,11
	ND — white, fine, very poorly grad llow banding, dry,	ded, grey and	SP 12,20,27,36
35—			
10—		·	

TITLE: Naval Air Station Whiting Field	100	of WELL: WHF-6-3	BORING	NO.	
TENT, CONTUNAVE A CENCOON	1 200			T NO: RI PHASE IIA	
CLIENT: SOUTHNAVFACENGCOM CONTRACTOR: Groundwater Protection 1	Inc	DATE STARTED: 5/4/9		COMPLTD: 5/7/93	
	CASE SIZE: 2"	SCREEN INT.: 109-124		ION LEVEL: Modifie	d D
METHOD: HOLLOW STEM AUGER				Ţ 114.11 FT.	
TOC ELEV.: 176.14 FT.	MONITOR INST.: OVA	TOT DPTH: 124FT.	SITE: 6	<u>¥</u> 114,1111.	
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE:				
DEPTH FT. GIGLEAUGHES SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT Continued from	PTION S H	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL UAIA
50—					
85—				8,25,40,46	
90 12/24 0 SA	ND – very pale orange, fine, y. PAGE 2 of	\	SP SP	L SERVICES, IN	

	g Field	LOG of WELL: WHF-6-3		BORING NO.	
LIENT: SOUTHNAVFACENGCO	4			PROJECT NO: RI PHA	SE IIA
ONTRACTOR: Groundwater Pro	tection Inc.	DATE STARTED:	: 5/4/93	COMPLTD: 5/7	7/93
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 1	09-124 FT	PROTECTION LEVEL:	Modified D
OC ELEV.: 176.14 FT.	MONITOR INST.: OVA	TOT DPTH: 124F	Т.	DPTH TO ♀ 114.11 FT.	
OGGED BY: S. Consalvi	WELL DEVELOPMENT	DATE: 6/8/93		SITE: 6	
S AMPLE S AMPLE RECOVERY	AND C	DESCRIPTION COMMENTS from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS AI-9/SMOTH	WELL DATA
12/24				SP	
5— 14/24	SAND - pale yellow orang trace coarse grains, oran			SP 10,18,22,30	
0	SAND (3") - white, fine, to orange, moderate red and sand.			SP 11,27,36,36	
5—	SILTY SAND - white, fine yellow orange to very pail sand.			SM 20.26,70,50	
0	SAND - white, fine, pale y	yellow orange banding.		SP 12,38,64,50	
5—	RE-DRILL CLAY - greyish mottling, some silt, damp. RE-DRILL CLAYEY SILT -			OL 9,14,27,31	Ā
0—	mottling and streaking,som trace fine sand.	me sand CLAY (6") - silt, e (18"). SAND (6") - white,		0,27,28,24	
5——————————————————————————————————————	CLAY (1') - grey, dusky re SAND (1') - white, saturat	ed mottling and streaking. ted.		SP	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-9-3		BORING N	١٥.	
LIENT: SOUTHNAVFACENGCOM				PROJECT	NO: RI PHASE I	IΑ
ONTRACTOR: Groundwater Protection Ir	nc.	DATE STARTED: 2/22	/93	С	OMPLTD: 2/25/9	3
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 90-105	5 1	PROTECTI	ON LEVEL: Modi	fied D
	MONITOR INST.: OVA	TOT DPTH: 107FT.	1	DPTH TO	₹ 97.37 FT.	
	WELL DEVELOPMENT DATE:		:	SITE: 9		
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	ON G	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D – moderate reddish orange, fi red orange, dry.	ne, silty sand,		SM	2,8,16,21	
1 1 1 1 1 1	Y SAND - reddish brown, fine, plense, dry.	poorly graded, 1"		SM	4,9,5,10	
	D – yellow to dark reddish brow some silt, striations, poorly gra			SP	4,4,4,8	
0 SAA				SP	5,4,5,5	
25— ———————————————————————————————————	, color change to dark purple to	o pink.		SP	5,4,7,8	
0 SAA	, pink, dark purple, to pale yello	ow.		SP .	5,5,7,8	
	ID – white pink to yellow, fine to erately graded, loose, dry,	o medium,		SP	3,6,8,11	
40—	PAGE 1 of 9N		N/IDO	SP	6,7,16,14 _ SERVICES,	INC

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-9-3	BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/2	2/93	COMPLTD: 2/25/	/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 90-10	5 PROT	ECTION LEVEL: Mo	dified D
TOC ELEV.: 150.98 FT.	MONITOR INST.: OVA	TOT DPTH: 107FT.	DPTH	TO ¥ 97.37 FT.	
LOGGED BY: M. Alvarezi	WELL DEVELOPMENT DATE:		SITE	9	
DEPTH TT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 1	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND - white, fine, poorly graded, l	oose, dry.	SP		
0 SA	A		SP	7,10,15,16	
0 SA	A, pink striations.		SP	7,11,17,19	
1 1 1 1 1 1	.ND - pinkish white, fine to medium aded, trace clay, loose, dry.	i, moderately	SP	14,13,14,15	
	.ND - white, fine to medium, moder ose, dry.	ately graded,	SP	20,26,29,37	
	ND – fine to coarse, trace grave derately dense, dry.	, well graded,	SP	20,22,30,33	
- 24/24 co	ND – white to pale yellowish oran arse, moderately graded, loose, w ter).		SP .	20,18,25,29	
	AY — gray with reddish purple mot astic, moist.	ttling, fine,	CL	2,2,2,3	
] 24/24 0 SA	A. LTY CLAY — pinkish gray, stiff, pla	astic, moist.		3,4,9,10	

	ing Field		LOG o	FWELL: WHF-9-3		BORI	NG NO.	
IENT: SOUTHNAVFACENGO	СОМ					PROJE	ECT NO: RI PHASE	IIA
NTRACTOR: Groundwater f	Protection	Inc.		DATE STARTED:	2/22/93		COMPLTD: 2/25	/93
THOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.: 90	0-105	PROTE	CTION LEVEL: MO	dified D
OC ELEV.: 150.98 FT.		MONITOR INST.: 0VA	4	TOT DPTH: 107FT		DPTH	TO ♀ 97.37 FT.	
GGED BY: M. Alvarezi		WELL DEVELOPMENT	DATE:			SITE:	9	
L LABORATORY THE SAMPLE ID. SAMPL	HEADSPACE (ppm)	SOIL/ROCK AND C	COMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
17/24		A — gray with purple m				CL	4,9,15,12	
16/24	0 SA	A - no sand lense.				CL	6,11,16,20	
15/24	1 1	ND – tan, fine, some si urated.	lt, poorly	graded, loose,		SP	11,13,16,23	
14/24	1 1	ND – grayish pink, fine se, saturated.	to mediur	n, poorly graded,		SP	19,28,31,37	
15/24	3 54	4 – light tan.				SP	N/A	
5								

TITLE: Naval Air Station Whiting Field	LOG of W	NELL: WHF-10-2	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 3/08/93	COMPLTD: 3/23/9	93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 98-113 FT.	PROTECTION LEVEL: D	
TOC ELEV.: 150.83 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ♥ 88.6 FT.	
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 10	
DEPTH FT. FT. GIJAWAS SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTIO AND COMMENTS	Z LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA
5 0 SAN	IDY CLAY - reddish brown, poorly	graded, dry	3,2,3,3	
			٠.	
0 SAN	ID – orange to red, fine to medium	n, poorly graded,	3,5,6,9	
- 14/24 dry				
	IDY CLAY — reddish brown, fine to ded, dry.	medium, poorly — —	SC 14,19,19,29	
	TY SAND — reddish brown, 1/2" cla t, plastic. SAND — yellow, medium,		M/CH/SP 8.12,14.22	
	YEY SAND - 5" bands mixed with	3" clay bands, ——	SC/CH 3,3,4,5	
-	, , , , , , , , , , , , , , , , , , , ,			
0 SIL mois	TY SAND — yellow to tan, fine, poo st.	orly graded.	7.5,6,5	
0 SIL	TY SAND — SAA, slightly moist, pui	rple bands.	7.7.9.10	
40-			8,7,10,10	

TILE, Navai	Air Station	Whiting Fig	eld ·	LOG of	WELL: WHF-10-2		BORI	NG NO.	
LIENT: SOU	THNAVFACE	NGCOM					PROJE	CT NO: RI PHASE	IIA
ONTRACTOR	R: Groundwat	er Protec	ion Inc.		DATE STARTED: 3	3/08/93		COMPLTD: 3/23/	/93
IETHOD: MUC	ROTARY		CASE SIZE: 2"		SCREEN INT.: 98	-113 FT.		CTION LEVEL: D	
OC ELEV.: 15			MONITOR INST.: OVA		TOT DPTH: 115FT.			TO ¥ 88.6 FT.	
OGGED BY:	R. Nelson		WELL DEVELOPMENT	DATE:		·	SITE:	10	
LABORA SAMPLE	WAMPLE SAND	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	12/	/24	SILTY SAND - SAA.				SM		
- - - -	18,	1 /24	SLITY SAND - purppple, graded, thin clay bands,				SM/CH	6,6,9,14	
50	14,	/24 N/A	SAND — white to purple, be poorly graded, moist.	prown band	ds, fine to medium,		SP	11,19,20,25	
- - - - -	12,	1 /24	SAND - bands of light brifine to medium, poorly gra				SP	28,28,33,33	
50	08	<1	SAND — light brown, medic saturated.	ım, poorly	graded, dense,		SP	38,72,ref	
5	08	1 1/24	SAND - SAA.				SP	46,61,50+ref	
0	12	/24	SAND - SAA, trace coars	se.			SP	28,43,60,71	
75	14.	1 /24	SAND - pale yellow to or graded, dense, 1/4" clay medium, saturated.				SP	9,23,40,52	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-10-2	B	ORING NO.	
CLIENT: SOUTHNAVFACENGCOM			Р	ROJECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 3/08	3/93	COMPLTD: 3/23/	93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 98-113	FT. PF	OTECTION LEVEL: D	
TOC ELEV.: 150.83 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DF	PTH TO ♀ 88.6 FT.	
OGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SI	TE: 10	
RECOVERY (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA(ON S	SYMBOL SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
CLA	XY – gray, medium stiff, moderate		CL		
	ne fine sand. NY – purple to gray, plastic, dry, se.	yellow fine sand	CH	14,10,15,16	
35—					
1 1 1 1 1 1	AY — gray, yellow to orange to restic, dry.	d mottled, stiff,	CH	14,12,16,17	
-, I I I	ND - (6 in. clay, white to purple sticity) 10 in. yellow to tan, very		SF	13,28,26,18	
12/24	ne as above.		SF	wr,29,33,35	
00	ne as above.		SF	16,21,23,29	
05—			51		
10—					
115					
20—		•			

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-11-1S		BORII	NG NO.	
LIENT: SOUTHNAVFACENGCOM		1		PROJE	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED:	7/21/93	Y	COMPLTD: 7/21/	93
IETHOD: MUD ROTARY CASE SIZE: 2"		SCREEN INT.: 36	-51 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 117.15 FT. MONITOR INST.:	: OVA	TOT DPTH: 52FT.		 	TO ¥ 45.64 FT.	
OGGED BY: N. Roka WELL DEVELOPM	MENT DATE:			SITE:	11	
	ROCK DESCRIPT	TON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	4 T VO
5—BKG SAND - red, little fin medium dense, wet, s	ubangular.			SP	4,5,6,7	
10— 18/24 BKG Same as above, excelled damp.	ept mostly silt,	medium dense,		SM/ML	8,8,9,11	
15————————————————————————————————————				SM/ML	6,5,9,11	2
2.0 Same as above. SILT - red, very sof	ft, saturated.			SM/ML	7,8,9,9	
3.0 SAND - red grade to trace silt, poorly gra				SP	11,12,13,11	
8.5 CLAY - redish yellow damp. SANDY SILT - brown				SP	15,17,22,28	
SAND - mustard yell damp. Same as above, light moist.	low, fine, poorly	graded, dense,		SP	33,51,REF	-
40				SP	32,29,41,47	

TITLE: Naval Air Station Whiting Field	LOG	of WELL: WHF-11-1S	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 7/21/93	COMPLTD: 7/21/	93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 36-51 FT	PROTECTION LEVEL: 0	
TOC ELEV.: 117.15 FT.	MONITOR INST.: OVA	TOT DPTH: 52FT.	DPTH TO \$ 45.64 FT.	-
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 11	
DEPTH SAMPLE SAMPLE COVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRI AND COMMENT Continued from F	S INOI	SOIL CLASS BLOMS/8-IN	WELL DATA
	ND – reddish orange grading to dium, poorly graded, wet, subar		SP	
1 1 20 1 1	ND – purple, red, yellow mottle orly graded, medium dense, sat		SP 18,13,16,20	
- 24/24 pla	AY — gray with red and yellow stic, moist. ND — gray with red and yellow		CL 6,9,9,9	
	ided, medium dense, wet, subar	igular.		
65— - - -				
70—				
75—				
80	PAGE 2 of	Ĭ	ONMENTAL SERVICES	

TITLE: Naval Air Station Whiting Field	LOG of	LOG of WELL: WHF-11-3		BORING NO.		
LIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/2	2/93		COMPLTD: 3/9/93	3
METHOD: MUD ROTARY	CASE SIZE: 2" SCREEN INT.: 55-70 FT			PROTECTION LEVEL: D		
TOC ELEV.: 117.24 FT.	MONITOR INST.: OVA TOT DPTH: 118FT.			DPTH TO ♀ 62.45 FT.		
OGGED BY: L. Foster	WELL DEVELOPMENT DATE:		İ	SITE: 11	1	
DEPTH FT SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- SAI	ND – reddish brown, fine, poorly st.	graded, loose,		SP	POSTHOLE	
)	ND – dark reddish brown, fine, sil if, slightly moist.	It, poorly graded,		SM	3,3,3,4	
10 -	ND - SAA.			SM	6,8,10,11	
15 O SA	ND - SAA.	_		SM	6,9,11,11	
20 0 SA	ND – orangish brown, fine, poorly	y graded.		SP	4,5,6,6	
25 O SA	ND - fine, maist, loose.	-		SP	4,5,6,6	
30 O SA	ND - off-white, fine, poorly grad	ded, loose, dry.		SP	4,11,18,28	
35— - - - - - - - - - - - - - - - - - - -	ND - SAA.		• • •	SW	5,10,13,17	
40 7 CL	AY – gray to red, stiff, moist.	 		CL	2,3,5,7	
6 CL	AY - SAA.			CL	5,7,8,9	
	AY — red to tan, inorganic, trace	e silt, plastic,		CL	2,3,4,6	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-11-3	BORIN	IG NO.		
LIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/22	2/93	COMPLTD: 3/9/9	93	
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 55-70	FT PROTE	CTION LEVEL: D		
OC ELEV.: 117.24 FT.	MONITOR INST.: OVA	TOT DPTH: 118FT.	OPTH 1	DPTH TO ¥ 62.45 FT.		
OGGED BY: L. Foster	WELL DEVELOPMENT DATE:		SITE: 1	1		
SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GF 1	SYMBOL SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
	AY - SAA, 8" light brown, some fir		CL CL	3,4,8,10		
24/24 0.6 CLA	AY — yellowish orange, lower 2" m ad, firm, moist.	aroonish red, fine	CL	1,1,2,1		
0 CL	AYEY SAND — brown to red, mottl 1, slightly moist.	ed, moderately	sc	6,10,11,12		
	ND – yellowish orange, fine to me ded, medium dense, wet.	dium, poorly	• • SW	12,13,12,12		
	ND — yellowish orange, fine to me e and coarse, moderately graded 	l l	• . Sw	13,23,18,16		
	ND – pale orangish red, fine to m ded, dense, moist.	edium, well	• • SW	16,17,19,24		
3.5 Sar	ne as above, slightly more mediun	sand.	• . SW	X,X,27,28		
	ND – grade pale pink to white, gr e, well graded, stiff.	ade coarse to	• · · • SW	6,6,17,20		
	ND – very light gray to light tan, ided, medium dense , moist.	fine, poorly	SP	7,11,23,27		
)	ND — light tan, medium coarse, tra ded, medium dense , wet.	ace fine, well	• . SW	23,19,14,24		

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-11-3	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/22/93	COMPLTD: 3/9/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 55-70 FT	PROTECTION LEVEL: D
TOC ELEV.: 117.24 FT.	MONITOR INST.: OVA	TOT DPTH: 118FT.	DPTH TO ♥ 62.45 FT.
LOGGED BY: L. Foster	WELL DEVELOPMENT DATE:		SITE: 11
DEPTH FT. FT. SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PAG	IHO!	SOIL CLASS A0-19-0-5-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6-6
	ND — brown to red to gray bandir rly graded, dense, well rounded,		SW 10,19,22,26
	ND — pinkish tan, medium to coars graded, dense, trace gravel, lov	1 1	SW 17,13,13,16
	.Y – red brown and white, fine to ded, firm, stiff, moist to wet.	medium, well	7,14,25,27
	ND — light tan, fine to medium, mo ded, saturated.	derately well	15,15,19,21
	ND — light tan, medium to coarse, ded, moderately dense, saturate		16,12,15,13
120— THE	ne as above, saturated. E HOLE WAS OVERDRILLED TO 118 EN BACKFILLED TO 80 FT. WITH E WELL WAS SET.		9,11,14.15
125—			
130—			
135	PAGE 3 of 111	MW3 ARR ENVIRO	NMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field	LOG o	F WELL: WHF-13-1S		BORING NO.	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 7/19	9/93	COMPLTD: 7/20/93	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 43-5	8 FT P	PROTECTION LEVEL: D	
TOC ELEV.: 109.47 FT.	MONITOR INST.: OVA	TOT DPTH: 60FT.	0	PTH TO ♀ 55.8 FT.	
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:		S	SITE: 13	
DEPTH FT. TI. SAMPLE SAMPLE RECOVERY HEADSPACE (PDIII)	SOIL/ROCK DESCRIPT AND COMMENTS	LION	SYMBOL	SOIL CLASS MOTE CLASS WELL DATA	
5— 0.2 SI	LT - red, very fine, medium denso	e, very soft, wet.	/// M	8,9,12,14	
10— - - - - - - - - - - - - - - - - - - -	AYEY SILT – red, slightly moist,	firm, some sand.	// M	8,9,10,13	
15— 24/24 1.4 Sa	nme as above, yellow and red mot	tled, no clay.	/// M	7,9,11,14	
20— - - - - - - - - - - - - - - - - - - -	ame as above, some clay.		/// M	5,5,7,9	
- 12/24 SA	ame as of above. NND – light tan to orange, fine to aded, dense, moist, subrounded.	medium, poorly	ML.	/SP 12,16,18,19	
	NND – white to tan to orange, ver	ry fine, silt, medium	S	5P 11,12,15,17	
35— 12/24 4.5 Sa	ame as above, light tan to yellow.		· S	5P 11,14,17,22	
40	PAGE 1 of 13			12,14,18,24 MENTAL SERVICES, INC.	

ITLE: Naval Air Station Whiting Field	L06	of WELL: WHF-13-1S		BORI	NG NO.	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protectio	n Inc.	DATE STARTED: 7	/19/93		COMPLTD: 7/20	/93
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 43	-58 FT	PROTECTION LEVEL: D		
OC ELEV.: 109.47 FT.	MONITOR INST.: OVA	TOT DPTH: 60FT.		DPTH	TO ♀ 55.8 FT.	
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:			SITE:	13	
SAMPLE SAMPLE RECOVERY (Ppm)	SOIL/ROCK DESCRI AND COMMENTS Continued from F	5	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
13/24 S	AND – rust to light tan to white by yellow to red, fine, poorly grad aturated.			SP		
	AND – rust to mustard yellow, fir raded, dense, saturated, subrou			SP	12,14,16,15	
- 24/24 s	LAY – gray to red and yellow mo tiff, grade to sandy clay. AND – red, fine to medium, poorl			SP	14,18,23,28	
55— 10 5	aturated, subangular. AND - purple, fine to medium, polense, saturated, subangular.			SP	6,12,9,11	
60—						
75—						
30—						

TITLE: Naval Air Station Whiting Field	LOG of WELL: WH	F-13-2	BORING N	10.			
CLIENT: SOUTHNAVFACENGCOM			PROJECT	NO: RI PHASE I	IA		
CONTRACTOR: Groundwater Protection	Inc. DATE ST	ARTED: 3/10/93	COMPLTD: 3/18/93				
METHOD: MUD ROTARY	CASE SIZE: 2" SCREEN INT.: 54-69			PROTECTION LEVEL: D			
TOC ELEV.: 102.92 FT.	MONITOR INST.: OVA TOT DPT	H: 71FT.	DPTH TO \$	52.26 FT.			
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 13	TOWN THE STATE OF			
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA		
-							
5— 0 SIL dry	TY SAND — reddish brown, fine poorly grad	ded,	SM	2,3,5,9			
0 San	ie as above, moderately dense, dry.		SM	5,5,7,8			
	ID – reddish brown, fine, poorly graded, lerately dense, dry.		SP	7,9,11,8			
	ID – yellowish orange to tan, fine, trace c rly graded, medium dense, dry.	parse,	SP	11,11,13,14			
5— 0 San	ne as above, some medium, dry.		SP	9,15,19,12			
10/24 plas	Y – yellowish orange, gray mottling, soft, sticity.	dry, low	CL	11,8,6,9	1212121		
0 SIL	TY CLAY - Same as above.			2,2,3,4			
- 0 Sam	ne as above, bottom 2" red and gray mottl	ing.		3,2,1,2			
	Y – red, gray mottling, soft, slightly moist, sticity.	low		2,2,3,2			
	Y — some silt, soft, slightly moist, low plas tom 3" red and gray mottling.	ticity,	CL	1,1,1,1			

TITLE: Naval Air Station Whiting Field		LOG of	WELL: WHF-13-2		BORI	NG NO.	
CLIENT: SOUTHNAVFACENGCOM				***	PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection 1	nc.		DATE STARTED: 3	/10/93		COMPLTD: 3/18/	93
METHOD: MUD ROTARY	CASE SIZE: 2"		SCREEN INT.: 54	-69	PROTE	ECTION LEVEL: D	
TOC ELEV.: 102.92 FT.	MONITOR INST.: OVA		TOT DPTH: 71FT.		DPTH TO ♀ 52.26 FT.		
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT D	ATE:			SITE:	13	
DEPTH FI. FI. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK D AND COM Continued fi	MENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
20/24					CL		[4]
22/24 plas	Y — red and gray mottlir tic. • Y — medium gray to purp		um stiff, dry,		CL	2,3,2,4 NA	
	D — top 6" brown, fine, grange, hard, bottom 2",		CLAY, 10", gray		SP	NA	
55— 15/24 0 brow	YEY SAND - reddish bro Inish yellow, fine. e as above.	own to g	ray to purple to		CL SP/CL	NA NA	
0 Sam	e as above.				SP ·	NA	
1 SAN fine,	D — light gray with some	e orange	and red bands,		SP	NA	
70—							
75—							
80—	PAGE 2	2 of 13	MW2 ABB F	I I	 NMENT	AL SERVICES,	INC.

TITLE: Naval Air Station Whiting Field	LOG of	F WELL: WHF-14-2	BORING N	NO.	
CLIENT: SOUTHNAVFACENGCOM		·	PROJECT	NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 3/18/93	COMPLTD: 3/22/93		
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 100-115	PROTECTION LEVEL: 0		
TOC ELEV.: 145.86 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ♀ 95.8 FT.		
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 14		
DEPTH F1. F1. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	N SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 18/24 O S	LTY SAND - reddish brown, fine.		SP	NA	
10— 0 S	ame as above.		SP	3,3,5,6	
15 0 C	.AYEY SAND - yellow and red bro	own mixture.	SP	5,5,12,6	
20— 0 C	_AY — red brown, with silt and sar	nd.	SP	NA	
0 S	AND – red brown, fine to very fine	e, well sorted.		· NA	
	AND – purple and grey, fine, little	silt.	SP	NΔ	
30— 0 S	ame as above – thin beds of alte	rnating colors.	SP	NΔ	
	ame as above (Top 6") SAND (12 allow, fine, wet.	") - purple and	SP	NA	
	AND – white, yellow and brown, veraded.	ery fine, poorly	SP	NA	

ITLE: Naval Air Station Whiting Field	LOG of WELL: WHF-	14-2 B	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA		
CONTRACTOR: Groundwater Protection Inc.		TED: 3/18/93	COMPLTD: 3/22/9	33	
	ASE SIZE: 2" SCREEN IN		OTECTION LEVEL: □ TH TO \$\foating\$ 95.8 FT.		
	ONITOR INST.: OVA TOT DPTH: ELL DEVELOPMENT DATE:		TE: 14		
OGGED BY: W. Colby-George SAMPLE SAMPLE ID. SAMPLE ID. SAMPLE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
12/24 0 Same a	as above – brown and white.	SF	NA		
0 Same 6	as above.	SF	NA NA		
55— 0 Same	as above.	Si	, NA		
0 Same	as above.	Si	, NA		
0 Same	as above.	5	NA NA		
70— 10/24 O Same	as above - wet.	S	P NA		
75— 24/24 poorly	(16") — purple, soft. SAND — yellow, coar y graded. EY SAND and SANDY CLAY (alternating) -		NA NA		
24/24 and y		9,0,	NA		

ITLE: Naval Air Station Whiting Field		LOG of WELL: WHF-14-2		BORIN	NG NO.		
LIENT: SOUTHNAVFACENGCOM			**	PROJE	CT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED	: 3/18/93		COMPLTD: 3/22	/93	
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 1	00-115	PROTECTION LEVEL: D			
OC ELEV.: 145.86 FT.	MONITOR INST.: OVA	TOT DPTH: 115F	т.	DPTH 1	TO ♀ 95.8 FT.		
OGGED BY: W. Colby-George	WELL DEVELOPMENT DA	TE:		SITE:	14		
SAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DES	ENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
20/24 str NA CL	ND (Top 2") — medium. CL eaking. AYEY SAND and SANDY CL low and grey.			CL	NA NA		
22/24 CL NA Sa 20/24	ND (Top 2") - yellow brow AY (20") - grey and purpl me as above. me as above - wet. CLAY e.	e, medium plasticity.		CL	NA NA		
NA SA	ND - fine.			SP	NA		
10— NA Sa	me as above.			SP	NA		
15————————————————————————————————————	me as above.			SP	NA		

	111 J 1 A 1	1011	*****	IG FIELD	LOG of	WELL: WHF-15-2D	l	BORIN	IG NO.	
CLIENT: SOUTH	NAVFAC	ENGC	MC			`		PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: G	roundwa	iter Pi	otect	on Inc.		DATE STARTED: 07	/17/93		COMPLTD: 07/18	/93
METHOD: MUD RO	DTARY			CASE SIZE: 2 in.		SCREEN INT.: 104.	6-109.6	PROTE	CTION LEVEL: D	
TOC ELEV.: 60.0	7 FT.			MONITOR INST.: OVA	MONITOR INST.: OVA TOT DPTH: 110FT.			OPTH 1	ro ♀ 19.33 FT.	
LOGGED BY: N.	Roka			WELL DEVELOPMENT	DATE:			SITE: 1	5 - S.W. Landfill	
E LABORATOR	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6IN	WELL DATA
5—	2	4/24	BKG	SAND — rust brown, fine t loose, slightly moist, subr		poorly graded,		SP	2,3,4,5	
10	/ 2	22/24	2	Same as above. CLAY - brown, soft, plas SILT SAND - black, fine,		ghtly moist.		SM	1,1,2,1	
15		24/24	BKG	CLAYEY SAND - gray, fir slightly moist.	ne, poorly	graded, loose,		SC	2,2,2,2	
20		24/24	0.4	SAND — white, fine, silt, p moist.	ooorly gra	ded, medium dense,		SP/SM	11,13,17,13	
25	7	24/12	вкс	SANDY SILT – brown, sa SAND – yellowish tan, fir saturated.		ium, poorly graded,		SM/SP	WOR,6,4	7 " 2 " 2 " 2 "
30				FROM WHF-15-MW-2I SAND - orange to red t SAND - orangish brown,			• • •	SW		2" 2" 2" 2"
35—				SAND – light tan, fine to saturated.	o medium,	poorly graded,		SP		

TITLE: NAVAL AIR STATION WHITING	S FIELD LOG	of WELL: WHF-15-2D		BORI	NG NO.	
CLIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 0	7/17/93		COMPLTD: 07/18	/93
METHOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 104	.6-109.6	PROTE	CTION LEVEL: D	
TOC ELEV.: 60.07 FT.	MONITOR INST.: OVA	TOT OPTH; 110FT.		DPTH	TO ♀ 19.33 FT.	
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:			SITE:	15 - S.W. Landfill	
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	soil/rock descrif AND COMMENTS Continued from P	•	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
] s	AND – gray, fine, silty, well grade			SP		
	AND – gray, fine to medium, trac raded, saturated.	e coarse, poorly		SP		
50— - - -	AND – light brown, medium, well g	raded, saturated.		SP		
4 1 1	AND – light tan, fine, poorly grad ESUME WHF–15–MW–2D	ded, saturated.		SP		
! ! =	AND – light tan, fine to medium, p edium dense, saturated, subangu	=	7.67.67 7.67.67	SP	13,11,10,12	
65— BKG S	ame as above, loose.			SP	4,5,5,9	
70	ame as above, medium dense.			SP	4,8,9,11	
75—————————————————————————————————————	ame as above, dense.			SP	10,18,28,42	
80	PAGE 2 of 15			SP	4,4,8,11 FAL SERVICES.	

			LUG 0	FWELL: WHF-15-	-20	BUNI	NG NO.	
IENT: SOUTHNAVFACENG	COM					PROJ	ECT NO: RI PHASE	
NTRACTOR: Groundwater	Protection	Inc.	····	DATE STARTE		· ·	COMPLTD: 07/18	/93
THOD: MUD ROTARY		CASE SIZE: 2 in.		SCREEN INT.:	104.6-109.6	PROTE	CTION LEVEL: D	
OC ELEV.: 60.07 FT.		MONITOR INST.: 0V	Α	TOT DPTH: 110	FT.	DPTH	TO ♀ 19.33 FT.	
GGED BY: N. Roka		WELL DEVELOPMEN	T DATE:			SITE:	15 - S.W. Landfill	
S SAMPLE SAMPLE SAMPLE	HEADSPACE (ppm)		K DESCRIP COMMENTS i from PA		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
10/24		me as above, medium o	dense.			SP		
	1							
24/24	1 (me as above, dense.				SP	48,22,23,20	
-	BKG NC	RECOVERY				-	6,8,15,22	
0/24								
24/24		me as above, medium (dense.			SP	4,6,8,12	
)		nme as above, dense.				SP	10,15,22,29	
5——————————————————————————————————————		ame as above, loose.		·		SP	3,4,5,8	
1								
5								

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: WHF-15-2I	BORIN	NG NO.	
LIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 02/3/9)3	COMPLTD: 02/4/	/93
ETHOD: MUD ROTARY	CASE SIZE; 2 in.	SCREEN INT.: 50-60 F	T PROTE	CTION LEVEL: D	
OC ELEY.: 60.18 FT.	MONITOR INST.: OVA	TOT DPTH: 62FT.	OPTH 1	TO ♀ 20.7 FT.	
OGGED BY: R. NELSON	WELL DEVELOPMENT DATE:		SITE:	15 – S.W. Landfill	
PET THE SAMPLE SAMPLE (PDM)	SOIL/ROCK DESCRIPT: AND COMMENTS	ZOLITHOLOGIC	STMBUL SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 0 SA	ND – light brown, fine to medium, 7.	poorly graded,	SP	3,2,4,4	7" 7" 7" 7" 7" 7" 7" 7" 7" 7" 7" 7" 7" 7
24/24 fir 24/24 CL 24/24 0 CL	AYEY SILT – gray, medium plastic n, some sand. AY – gray, plastic, saturated, sof AYEY SILT – gray, medium plastic nd.	it, trace sand.	CL CL	2,2,2,2 1,1,3,5 10,10,12,11 7,7,8,10	Z" Z" Z" Z
0 - 14/24 1 CL	AYEY SAND – gray, medium to low n. AYEY SAND – gray, moist, firm.		SP	6,2,3,3	
5— 2.5 SA	ND — gray, fine, poorly graded, s ND — reddish brown, fine, poorly g turated.		SP	10,12,13,17	
5 18/24 SA	ND – orange to red to white, coa ND – orangish brown, fine, poorly		SW	22,22,33,40	
- 14/24 sa	ND — light tan, fine to medium, po turated.	orly graded,	SP	14,19,23,27	
0 3 SA	ND – gray, fine, silty, well graded	d, saturated.	• SW	6,5,4,5	
-	ND - gray, fine to medium, trace aded, saturated.	coarse, poorly	SP	7,8,12,12	
0— 12/24 5 SA	ND – light brown, medium, well gra	aded, saturated.	SP	7,7,7,8	
5—————————————————————————————————————	ND – light tan, fine, poorly grade	d, saturated.	SP	6,9,8,11	
0-1					
5	PAGE 1 of 15M	W001 450 51111	20111211	AL SERVICES.	•••

	NAVAL AIR S			ING FIELD	L06 o	WELL: WHF-15-2S		BOR	ING NO.	
	SOUTHNAV						····	PRO	JECT NO: RI PHASE	
<u> </u>	CTOR: Grou	ndwater i	Protec			DATE STARTED:	02/4/93		COMPLTD: 02/4	/93
METHOD): HSA			CASE SIZE: 2		SCREEN INT.: 15	-30 FT	PROT	ECTION LEVEL: D	
	EV.: 60.18 F1			MONITOR INST.: OVA		TOT OPTH: 37FT.		DPTH	TO ♀ 19.34 FT.	·
LOGGED	BY: R.Neis	on	_,	WELL DEVELOPMENT	DATE:			SITE	: 15 - S.W. Landfill	
DEPTH SY	BORATORY H	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
15—		18/24	1	SEE WHF-15-2D FOR ADDIDESCRIPTIONS. CLAY - gray, firm, moist, s CLAYEY SAND - gray, firm SAND - gray, fine, poorly	ome sand			SC	2,2,2,4 2,7,10,10	
40-				PAGE 1	<u>1 of 15M</u> 1	MO2S ABB (ENVIRON	IMEN1	AL SERVICES.	INC.

	WHITING FIELD	LOG of WELL: WHF-15-	-3D	BORING N	٧٥.	
CLIENT: SOUTHNAVFACENGO	COM			PROJECT	NO: RI PHASE	IIA
CONTRACTOR: Groundwater P	rotection Inc.	DATE STARTE	D: 01/23/93	C	OMPLTD: 01/25	/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.:	108-118 FT.	PROTECTI	ON LEVEL: D	
TOC ELEV.: 69.61 FT.	MONITOR INST.: 0V	/A TOT DPTH: 119	FT.	DPTH TO	Ų 26.2 FT.	
LOGGED BY: R. Nelson	WELL DEVELOPMEN	T DATE:		SITE: 15 -	S.W. Landfill	
DEPTH DEPTH SAMPLE SAMPLE SAMPLE	0) 🚾	CK DESCRIPTION COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—						
14/24	O SANDEY CLAY - red, mo	ist.		SC/CL	2,3,3,4	
08/24	SAND - red, fine, poorly moist.	graded, trace clay, slighti	у	SP	5,5,8,10	
09/24	3 SAND - SAA.			SP	6,8,8,12	
07/24	SAND/GRAVEL - red, we	ell graded, slightly moist.	000	GW	10,8,10,11	
5	(3") - purpte, very fine,	own, fine, poorly graded CL. poorly graded. SAND (9") porly graded, strong odor.		SP	2,3,3,4	
24/24	SAND (1.5') - reddish bri graded, saturated. SAN medium to coarse, well gi	D (6") - white to purple,		SP	3,3,3,3	
35—	SAND - light purple, fine saturated, sub-rounded.	to medium, poorly graded,		SP	6,7,8,8	

	AIN 317	H I IUN	**********	NG FIELD	LOG of	WELL: WHF-15-3D)		NG NO.	
CLIENT: SOUT	HNAVFA	CENGO	ОМ			T		PROJE	ECT NO: RI PHASE	
CONTRACTOR:	Groundy	vater P	rotec	ion Inc.		DATE STARTED:	01/23/93		COMPLTD: 01/25	/93
METHOD: MUD	ROTARY			CASE SIZE: 2		SCREEN INT.: 10	8-118 FT.	PROTE	CTION LEVEL: D	
TOC ELEV.: 69	9.61 FT.			MONITOR INST.: OVA	4	TOT DPTH: 119FT		DPTH	TO 및 26.2 FT.	
LOGGED BY: 1	R. Nelsor)		WELL DEVELOPMENT	DATE:			SITE:	15 - S.W. Landfill	
L LABORAT SAMPLE		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		16/24	6	SAND - SAA, 1" bands of bottom of spoon.	red fine s	and at top and		SP	6,6,7,9	
45	7	12/24	5	SAND (8") - orange to b trace coarse, saturated, medium, well graded.			• • •	SW	7,8,5,6	
50-		14/24	4	SAND (10") - white, medic coarse, saturated. SAND			• • •	SW	6,5,5,4	
55—		18/24	1	SAND - white to tan, ver saturated.	y fine, por	orly graded,		SP	3,2,5,6	
60-		12/24		SAND - yellow to brown, coarse, saturated.	fine, poor	ly graded, trace		SP	8,11,?,11	
65—		18/24	N/A	SAND - fine, poorly grad	ded, satura	ated.		SP	12,16,16,16	
70	7	12/24	20	SAND - yellow to brown, saturated, sub-rounded.		oorly graded,		sp	3,4,3,6	
75—	7	16/24	- 10	SAND - yellow to brown, saturated, sub-rounded.		rell graded,		SP	11,12,16,23	

ITLE: NAVAL AIR STATION W	HIIING FIELD	LOG of W	ELL: WHF-15-3D		BORIN	IG NO.	
LIENT: SOUTHNAVFACENGCO	М				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Pro	otection Inc.	0	ATE STARTED: 0	1/23/93		COMPLTD: 01/25	/93
METHOD: MUD ROTARY	CASE SIZE: 2	S	CREEN INT.: 108	-118 FT.	PROTE	CTION LEVEL: D	
TOC ELEV.: 69.61 FT.	MONITOR INST.	: OVA T	OT DPTH: 119FT.		DPTH 1	ro ♀ 26.2 FT.	
OGGED BY: R. Nelson	WELL DEVELOP	MENT DATE:			SITE:	15 - S.W. Landfill	
SAMPLE SAMPLE FITH RECOVERY	dd)	ROCK DESCRIPTIO AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6~IN	WELL DATA
	40 SAND - yellow to bre				SP	17,21,23,21	
12/24	saturated, 2" lamina	or purple sand, ii	ne at 63.				
35—	2 SAND - yellow brown	n, fine, well grade	d, saturated, 4"		SP	N/A	
- 14/24	lamina of purple, med						
20/24	O CLAY (16") - purple saturated. SAND (4				СН	N/A	
5——————————————————————————————————————	graded, trace clay, SAND - yellow brown silt, moist.		y graded, trace		SM	N/A	
0	1 SAND - SAA.		*		SM	N/A	
5—	O SAND (4") - yellow (4") - purple to yell (6") - purple to yell	low, plastic, satur			SP	N/A	
14/24	5 SAND - yellow to br	own, fine to coars	se, saturated.		SP	N/A	
115—	5 SAND - purple, medi	ium, poorly graded	d, saturated,		SP	N/A	
20/24	N/A SAND (10") - SAA. yellow sand interbed		ple, stiff, fine		SP	N/A	

ITLE: NAVAL AIR STAT	10/1 /////////	11225	LOG of	WELL: WHF-15-31		BOR	ING NO.	
LIENT: SOUTHNAVFACE	ENGCOM		<u>'</u>			PROJ	JECT NO: RI PHASE	IIA
ONTRACTOR: Groundwa	ter Protection	Inc.		DATE STARTED: 0	2/2/93		COMPLTD: 02/2/	/93
ETHOD: MUD ROTARY		CASE SIZE: 2	****	SCREEN INT.: 75~	85 FT	PROT	ECTION LEVEL: D	
OC ELEV.: 69.72 FT.		MONITOR INST.: OVA		TOT DPTH: 87FT.		DPTH	TO ¥ 26.86 FT.	
OGGED BY: G. Kanchibi	hatla	WELL DEVELOPMENT	DATE:	· · · · · · · · · · · · · · · · · · ·		SITE:	: 15 - S.W. Landfill	
	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	SE	E WHF-15-3D FOR LITH	⊣OLOGICA	L DESCRIPTIONS.				

		_OG of WELL: WHF-15-3:		BORING	7 110.	
LIENT: SOUTHNAVFACENGCOM			***	PROJEC	T NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED:	02/2/93		COMPLTD: 02/2/	/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 7	5-85 FT	PROTEC	TION LEVEL: D	
OC ELEV.: 69.72 FT.	MONITOR INST.: OVA	TOT DPTH: 87FT		DPTH TO) ♀ 26.86 FT.	
OGGED BY: 6. Kanchibhatla	WELL DEVELOPMENT DA	TE:		SITE: 15	- S.W. Landfill	
LEPTH FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DES AND COMM Continued fro	ENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
50—						
	AND - purple, fine, poorly go AND - purple, medium, well g			SP	2,3,2,2	
	AND – light purple, fine, silty aturated.	y, poorly graded,		SP	5,8,9,12	
35—						

				NG FIELD	LOG of	WELL: WHF-15-3S		BOR	ING NO.	
CLIENT:	SOUTHNAVFA	CENGC	ЮМ					PRO	IECT NO: RI PHASE	IIA
CONTRA	CTOR: Ground	ater P	rotect	ion Inc.		DATE STARTED: 0	2/1/93		COMPLTD: 02/1/9	93
METHOD	: HSA			CASE SIZE: 2"		SCREEN INT.: 20	-35 FT	PROT	ECTION LEVEL: D	
TOC ELE	V.: 69.87 FT.			MONITOR INST.: OVA	1	TOT DPTH: 37FT.		OPTH	TO \$ 26.24 FT.	
LOGGED	BY: G. Kanch	ibhatla)	WELL DEVELOPMENT	DATE:			SITE	15 - S.W. Landfill	
DEPTH T LAE	BORATORY ALL MANAGES	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—				SAND - reddish brown, findry. Same as above, alternating SAND - gray to white, me saturated. SAND - fine, silty, saturated.	ng bands d	of pink and white.		SP	5,6,6,6 3,4,4,5 3,2,2,3	
35—										
40										

	A I IUN WHI	TING FIELD	LOG of WELL: WHF-15-4	4	BORII	NG NO.	
LIENT: SOUTHNAVFA	CENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Grounds	water Prote	ection Inc.	DATE STARTED): 02/18/93	ς	COMPLTD: 04/29	9/93
METHOD: HSA		CASE SIZE: 2"	SCREEN INT.:	92-107 FT.	PROTE	CTION LEVEL: D	
TOC ELEV.: 143.54 FT.		MONITOR INST.: 0VA	TOT DPTH: 112F	т.	DPTH '	TO \$ 98.8 FT.	
OGGED BY: G. Kanch	nibhatla	WELL DEVELOPMENT	DATE:		SITE:	15 - S.W. Landfill	
E L. LABORATORY H	RECOVERY HEADSPACE	SOIL/ROCK	CDESCRIPTION COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-			poorly graded, dry, loose,	12,000,00	SP		
5	20/24	some organic content.			·	1,1,1,1	
10	8/24 0	SAND - reddish brown, fi loose.	ne, poorly graded, dry,		SP	2,2,3,2	
15—	1/24 0	SAND - dark tan and yel poorly graded, dry.	lowish orange bands, fine,		SP	6,8,9,10	
20—	24/24 0	Same as above, trace an	nounts of silt at 21 ft. bls.		SP	4,6,10,12	
25—	20/24 0		poorly graded, moderately		SP	8,7,11,14	
30—	20/24 0	1	, poorly graded, moderately coarse to very coarse	y	SP	8,7,11,14	
35	12/24 0	1	s of reddish brown fine to cose, dry.		SP	5,6,10,13	

ITLE: NAVAL AIR STATION WHITING F	LOG of	WELL: WHF-15-4	BOR	ING NO.	
LIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE :	IIA
ONTRACTOR: Groundwater Protection 1	inc.	DATE STARTED: 02/18/	93	COMPLTD: 04/29	/93
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 92-107 F	T. PROT	ECTION LEVEL: D	
OC ELEV.: 143.54 FT.	MONITOR INST.: OVA	TOT DPTH: 112FT.	DPTH	1 TO ♀ 98.8 FT.	
DGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE	: 15 - S.W. Landfill	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	IHO	SOIL CLASS	BLOWS/6-IN	WELL DATA
7 I - 1	e as above, trace coarse.		SP	5,8,11,14	
5	ne as above.		SP	8,13,23,27	
	ID – white, fine, trace silt, moder ntly moist, poorly graded.	rately dense,	SP	6,11,15,17	
5—————————————————————————————————————	ne as above.		SP	14,10,14,21	
0 San	ne as above, white to tan.		SP	10,15,21,29	
	ND – white to tan, fine to medium derately dense, slightly moist.	n, fairly graded,	SP	22,28,29,28	
	ND – white, very fine to fine, poo derately dense, dry.	orly graded,	SP	17,11,25,52	
	ND – white, very fine to fine, pur ded, loose, dry.	ple bands, poorly	SP	18,27,31,28	

ITLE: NAVAL AIR STATION WHITING	LOG of	WELL: WHF-15-4	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 02/18/93	COMPLTD: 04/3	29/93
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 92-107 FT.	PROTECTION LEVEL: D	
OC ELEV.: 143.54 FT.	MONITOR INST.: OVA	TOT DPTH: 112FT.	DPTH TO ¥ 98.8 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill	
SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	THO	SOIL CLASS Broms/e-in	WELL DATA
- 20/24 0 poo	ND – white to purple, medium to fi orly graded, moderately dense, sli ce silt.		SP 22,12,12,14	
	ND – white to tan and purple, ver orly graded, dry, moderately dens	1 * . * * . * * 1	SP 16,31,39,29	5 6
· · · · · · · · · · · · · · · · · · ·	ND – white to tan, fine, poorly gra , loose to moderate density, sligh		SP 22,22,42,27	
20/24 0 poo	ND - white to tan, very fine to fin orly graded top 8", over SANDY C inge to purple, moist 8", over SAN e, purple, slightly moist, dense.	LAY, yellow	SP 7,15,31,33	
7 1	ND - white to tan, fine, poorly grace sandy clay.	aded, saturated,	SP DROP,16,15	
5—————————————————————————————————————	me as above, trace silt, saturated	I to wet.	SP	
0 -	me as above, fine, light brown.		SP	
5—	F-15-4 WAS REDRILLED ON 4/29	/93.		
		•		

TITLE: N	NAVAL AIR S	STATION	MHIII	NG FIELD	LOG of	WELL: WHF-15-5		BORI	ING NO.	
CLIENT:	: SOUTHNAV	FACENGO	ОМ	, <u>, , , , , , , , , , , , , , , , , , </u>				PROJ	JECT NO: RI PHASE	EIIA
CONTRA	ACTOR: Grou	ndwater f	rotec	tion Inc.		DATE STARTED:	02/05/93		COMPLTD: 02/0	18/93
METHOD): Mud Rot			CASE SIZE: 6 in.		SCREEN INT.: 56	6-66 FT.	PROTI	ECTION LEVEL: D	
TOC ELE	EV.: 104.32 F	T.		MONITOR INST.: 0VA	Δ.	TOT DPTH: 68FT.		DPTH	TO ¥ 64.63 FT.	
OGGED	BY: N. Hag	glin		WELL DEVELOPMENT	DATE:			SITE:	15 S.W. Landfill	
DEPTH FT.	BORATORY L SAMPLE ID. W	RECOVERY	HEADSPACE (ppm)		K DESCRIPT COMMENTS	TION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		15/24	0	SILTY SAND - dark red,	fine, mediu	ım dense, damp.		SM	3,5,5,7	
10		24/24	0	Same as above.				SM	-,-,-,-	
15—		12/24	0	SAND - reddish tan to w	hite, fine, l	loose, dry.		SP	2,5,8,11	
20-		24/24	0	Same as above, more whi	ite sand.			SP	4,5,7,10	
25-		24/24	0	SAND - white, very fine	to fin e , loc	ose, dry.		SP	5.5,6,7	
30-		20/24	0	Same As Above, banded	dark red a	and white.		SP	5,11,12,15	
35—		15/24	0	SAND - fine, banded rus	it and whit	e, damp.		SP	6,9,12,12	
40								\ SP /		

TITLE: NAVAL AIR STATION WHITING	LO	G of WELL: WHF-15-5		BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM		-		PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 0	2/05/93		COMPLTD: 02/08	3/93
METHOD: Mud Rot	CASE SIZE: 6 in.	SCREEN INT.: 56	-66 FT.	PROTI	ECTION LEVEL: D	
TOC ELEV.: 104.32 FT.	MONITOR INST.: OVA	TOT DPTH: 68FT.		DPTH	TO ♀ 64.63 FT.	
LOGGED BY: N. Haglin	WELL DEVELOPMENT DATE	:		SITE:	15 - S.W. Landfill	
DEPTH F.T. SAMPLE SAMPLE GPDM)	SOIL/ROCK DESC AND COMMEN Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND – white, some pink, fine, t se, damp.	race coarse sand,		SP	3,7,8,7	
100	ND — purple, fine to medium, se, wet. NY — purple, grey, tan, and y		• • •	SW	4,3,3,5 2,3,2,4	
50 -	ses, firm, plastic, moist. AY — Grey, highly plastic, firm y fine sand and yellow silt.	n, traces of purple		CL	1,2,3,6	
24/24 0 CL/	Y - Grey mottled red, some	sandy lenses, plastic,			1,1,4,5	
00 1	ne As Above top 18" over SA ne silt, dry.	ND, white, very fine,		SP	10,12,14,18	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TY SAND - brown, medium, w d, white, damp (bottom 6").	et, over very fine		SM	18,30,36,46	
7 24/24 0	ND - Top 8" brown, medium, my, brown, wet, over 8" of sandp.	•		SP	12,14,10,12	
7 1 14/24 \ 1	ND – brown to white, fine to d, loose, wet.	medium, some clayey		SP	14,14,11,10	
70-						
75—						
30—		•				

	IN GIAITOR	MUTIT	NG FIELD L	OG of WELL: WHF-15-6D		BORI	NG NO.	
LIENT: SOUTHN	AVFACENG	СОМ					ECT NO: RI PHASE	IIA
CONTRACTOR: Gr	oundwater	Protec	ion Inc.	DATE STARTED:	02/5/93		COMPLTD: 02/8	/93
METHOD: MUD RO	TARY		CASE SIZE: 2"	SCREEN INT.: 110	0-120 FT.	PROTE	ECTION LEVEL: D	
TOC ELEV.: 75.14	F.T.		MONITOR INST.: OVA	TOT DPTH: 122FT		DPTH	TO ¥ 35.33 FT.	
LOGGED BY: R.N	leison		WELL DEVELOPMENT DAT	E: \		SITE:	15 - S.W. Landfill	
E LABORATOR	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DES AND COMME		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	16/24	0	SANDY SILT – reddish brown, slightly moist.	medium, poorly graded,		SM	3,3,3,3	
10	20/24	1	Same as above.			SM	3,3,3,5	
15—	18/24	1	SAND - reddish brown, fine, to saturated.			SP	7,11,12,15	
-			SAND - white to gray, fine, po	porly graded.				
20-	14/24	1	SAND - reddish brown, fine, p	oorly graded, trace silt,		. SP	5,9,10,12	
25—	18/24	120	SAND - light purple, fine, poo	rly graded, silt, wet.		SP	5,8,8,7	
30—	14/24	160	SAND – orangish brown to grapoorly graded.	ay, fine, trace silt,		SP	4,5,5,6	1 1 1 1 1 1 1 1 1 1
35—	8/24	3	SAND - tan, fine, poorly grad	ed, silty.		SP	PUSHED	
40	10/24	160	SAND - gray, fine, poorly gra	ided, wet.		SP	PUSHED	

	STATION	WHITI	NG FIELD	LOG of WELL: WHF-15-6	D	BORI	NG NO.			
CLIENT: SOUTHNA	VFACENGO	OM				PROJ	ECT NO: RI PHASE	IIA		
CONTRACTOR: Grou	ındwater F	rotec	tion Inc.	Inc. DATE STARTED: 02/5/93			COMPLTD: 02/8/93			
METHOD: MUD ROTA	ARY		CASE SIZE: 2"	SCREEN INT.: 1	: 110-120 FT. PROTECTION LEVEL: D					
TOC ELEV.: 75.14 F	т.		MONITOR INST.: OVA	TOT DPTH: 122F	Т.	DPTH	TO ♀ 35.33 FT.			
LOGGED BY: R.Nel	son		WELL DEVELOPMENT DA	TE:		SITE:	15 - S.W. Landfill			
L LABORATORY OF SAMPLE ID.	SAMFLE	HEADSPACE (ppm)	SOIL/ROCK DE AND COM Continued fr	MENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA		
	6/24	22	Same as above.			SP	PUSHED			
50—		2	Same as above, medium.			SP	PUSHED			
	4/24	_	Game as above, medium.			or				
55—	20/24	12	SAND - light tan, fine to me trace coarse	dium, poorly graded, wet		SP	7,14,21,18			
- - - -	12/24	5	SAND - purple, fine, poorly	graded, wet.		SP	7,9,9,10			
05	20/24	1	SAND - light brown to light poorly graded, wet.	ourple, medium to coarse		SP	11,13,8,10			
70-	12/24	1	SAND - light brown, medium SAND - gray to white, fine,			SP	8,7,4,6			
75—	18/24	0	SAND - light brown, medium wet.	to coarse, well graded,		SP	10,7,6,7			
80	14/24	1.5	SAND - light brown, medium wet.	grained, well graded,	• • •	SW	7,7,8,5			
85—	14/24	18	Same as above, 3 in. clay I purple, poorly graded.	ayer, medium sand, light		SW	5,6,11,11			

ITLE: NAVAL AIR STATION WE	HITING FIELD	LOG of WELL: WHF-15-6	SD B	ORING NO.	
LIENT: SOUTHNAVFACENGCOM	4		PI	ROJECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Pro	tection Inc.	DATE STARTED	: 02/5/93	COMPLTD: 02/8	/93
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 1	110-120 FT. PR	OTECTION LEVEL: D	
OC ELEV.: 75.14 FT.	MONITOR INST.: OVA	TOT DPTH: 122F	T. DP	TH TO ♀ 35.33 FT.	
OGGED BY: R.Nelson	WELL DEVELOPMENT	DATE:	SI	TE: 15 - S.W. Landfill	,
SAMPLE SAMPLE RECOVERY	AND C	DESCRIPTION COMMENTS from PAGE 2	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
7	.5 SAND - light brown to pul	rple, medium, well graded.	• • • SW	2,7,8,9	
5——————————————————————————————————————	SAND — light brown, medit	um, well graded, wet.	• • • SW	3,4,8,11	
0-114/24	4 SAND - light brown, fine,	poorly graded, wet.	SP	25,15,15,14	
5——————————————————————————————————————	7 SAND — light brown to light graded.	ht purple, medium, poorly	SP	21,16,18,19	
0	O SAND - light brown, fine,	poorly graded, wet.	SP	30,37,34,38	
5——————————————————————————————————————	SAND - light brown, fine Same as above, medium. Same as above, purple.	to medium, poorly graded.	SP	21,20,18,19	
5—					
0—					

		LOG of WELL: WHF-15		BORIN	IG NG.	
CLIENT: SOUTHNAVFACENGO	СОМ			PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater P	Protection Inc.	DATE START	ED: 02/8/93		COMPLTD: 02/8	/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT	.: 25-40 FT.	PROTE	CTION LEVEL: D	
TOC ELEV.: 74.35 FT.	MONITOR INST.: 0	/A TOT DPTH: 4	IFT.	DPTH T	TO ¥ 34.32 FT.	
OGGED BY: R. Nelson	WELL DEVELOPMEN	T DATE:		SITE: 1	5 - S.W. Landfill	
DEPTH FT. GI BIGMES TO COLOURY SAMPLE SAMPLE		CK DESCRIPTION COMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 10— 15— 20— 25— 30— 40—		THOLOGIC DESCRIPTIONS				

ITLE: NAVAL	AIR SI	ATION	MUTIT	NG FIELD	LOG of	WELL: WHF-16-20		BOR	ING NO. WHF-16-20)
LIENT: SOUTH	HNAVFA	CENGC	OM					PRO	JECT NO: RI PHASE	IIA
CONTRACTOR:	Ground	water P	rotec	ion Inc.		DATE STARTED: 0	2/09/93	COMPLTD: 03/4/93		
(ETHOD: MUD (ROT.			CASE SIZE: N/A		SCREEN INT.: N/A	4	PROT	ECTION LEVEL: 0	
OC ELEV.: N/	A FT.			MONITOR INST.: OVA		TOT DPTH; 262FT.		DPTH	TO T FT.	
OGGED BY: R	R. Nelso	n, G.K.		WELL DEVELOPMENT	DATE: N/	A		SITE	16 – Wastewater P	Int.
LABORATO SAMPLE 1	NAMP LE SAMP LE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	7	15/24	0	SAND - light brown, fine to dry.	o medium,	poorly graded,		SP	4,4,7,5	
0	7	12/24	0	SILTY SAND - reddish bro	own, poor	y graded, dry.		SP	4,3,5,4	
5— -		12/24	2	SILTY SAND - reddish bro coarse, dry.	own, poor	ly graded, trace		SP	6,8,12,14	
)—————————————————————————————————————	7	16/24	1	SILTY SAND - SAA.				SP	5,6,7,9	
5	7	14/24	0	SAND - white to tan, very to SANDY CLAY - white, y				SP	6,9,8,5	
0	7	14/24	0	SAND - off-white, fine, p	oorly grad	ded, dry.		SP	9,11,12,14	
5—		16/24	0	SAND - SAA, saturated.				SP	6,6,7,9	
0			2			٠		SP	4,5,9,16	

TITLE: NAVAL AIR STATION WHITING		WELL: WHF-16-2D	BORING NO. WHF-	-16-2D
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI P	PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 02/09/93	COMPLTD:	03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVE	L: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO \$ FT.	
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A	1	SITE: 16 - Wastew	ater Pint.
CEPTH FT. T. CONTRACT SAMPLE SAMPLE COVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	THOI SYM	SOIL CLASS Broms/e-	Z WELL DATA
20/24	ND - light brown, fine, poorly graded, s	[64646]	SP	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND – ligh brown to tan, fine to me ded, saturated.	dium, poorly	SP 15,16,11,	9
1 1 1 1 1 1 1 1	ND - off-white, fine to medium, po ce silt, saturated.	porly graded,	SP 6,7,7,11	
	ND - off-white to light pink, fine ded, saturated.	to medium, poorly	7,8,9,11	
60— 2 SAI	ND - SAA.		SP 16,12,12,1	4
	ND – purple, medium, poorly grade urated.	ed, trace silt,	SP droppe	d
70————————————————————————————————————	ND - off-white, fine, poorly grade	ed, saturated.	SP 13,15,9,6	6
75— 26 SAI	ND – light brown, fine, poorly grad	ded, saturated.	SP 13,15,15,1	15
800			Sw / 4,5,8,12	2

TITLE: NAVAL AIR ST	A 1 ZOIN ME	1110		LOG of	WELL: WHF-16-2D		BORI	NG NO. WHF-16-20	
LIENT: SOUTHNAVE	ACENGCON	1			,		PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Ground	ACTOR: Groundwater Protection Inc.				DATE STARTED:	02/09/93		COMPLTD: 03/4	/93
(ETHOD: MUD ROT.	MUD ROT. CASE SIZE: N/A				SCREEN INT.: N/	'Α	PROTE	CTION LEVEL: D	
OC ELEV.: N/A FT.	ELEV: N/A FT. MONITOR				TOT DPTH: 262FT		DPTH	TO ♀ FT.	
OGGED BY: R. Nelso	n, G.K.	·	WELL DEVELOPMENT	DATE: N/	Α	·	SITE:	16 - Wastewater P	int.
L LABORATORY E SAMPLE ID.	RECOVERY	(wdd)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	12/24	SA	ND – tan to brown, med turated.			• • •	SW		
s—	12/24		ND – light brown, fine t turated.	o coarse,	poorly graded,	72.74.74 72.74.74	SP	14,12,16,15	
o	14/24	O SA	ND - SAA, purple.				SP	10,14,21,26	
5—	14/24		ND – light brown to tar arse poorly graded.	, fine to r	nedium, trace		SP	12,16	
0—	16/24	i.5 SA	ND - SAA, purple.				SP	16,19,22,17	
5—	16/24		.ND – light brown, fine t turated.	o medium,	poorly graded,		SP	dropped	
10	18/24	3.5					SP	19,21,26,28	
15—	12/24	4 SA	ND - SAA.				SP	39,41,53,60	
20		I/A					SP /	33,42,51,56	e

	72 7311 017			NG FIELD	DG of WELL: WHF-16-20	D	BORI	NG NO. WHF-16-2D	
LIENT: SO	UTHNAVFA	CENGC	ОМ				PROJ	ECT NO: RI PHASE	IIA
ONTRACTO	DR: Ground	vater P	rotect	ion Inc.	DATE STARTED:	02/09/93		COMPLTD: 03/4/	/93
ETHOD: MI	UD ROT.			CASE SIZE: N/A	SCREEN INT.: N	I/A	PROTE	ECTION LEVEL: D	
OC ELEY:	N/A FT.			MONITOR INST.: OVA	TOT DPTH: 262F	т.	DPTH	TO ♀ FT.	
OGGED BY	R. Nelson	, G.K.		WELL DEVELOPMENT DAT	E: N/A		SITE:	16 - Wastewater P	int.
L LABOR	LE ID. W	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESI AND COMME Continued from	NTS	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		12/24	1	SAND - light brown with 1" purp poorly graded, saturated.			SP		
5		20/24	N/A	SILTY SAND - fine to medium,	poorly graded, soft.		SM	11,11,15,12	
)_		24/24	N/A	SILTY SAND - mustard yellow,	fine, soft, saturated.		SM	1,2,1,1	
1			N/A	SILTY SAND - SAA.			SM	dropped	
5— -		24/24	N/A	SILTY SAND -SAA, gray.			SM	dropped	
-									
		24/24	0	SAND - SAA.		====	СН	7,12,13,14	
]		24/24	N/A	CLAY - gray, moderately stiff. CLAY - gray, moderately stiff.				20,18,23,24	
4			0	CLAY - gray, moderately stiff.				9,5,5,7	
_		12/12	0	CLAY (3") - SAA. SANDY SIL				9,10,9,8	
+		22/24	0	SAND (6") – yellowish orange, silt. SANDY CLAY (6") – gray	fine to coarse, some , moderately stiff.			13,12,11,12	
+			0	CLAY (II") - gray, moderately	stiff.		į	14,14,15,16	
-		22/24		CLAY - SAA, high plasticity.			5		
		24/24	0	CLAY - SAA.		====	СН	6,7,8,15	
		24/24	0	CLAY - SAA.	•	====	СН	14,12,11,14	

TILE: NAVAL AIR STATION WHITING F	LOG of	WELL: WHF-16-2D	BORING NO. WHF-16-2D		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA		
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 02/09/93	COMPLTD; 03/4/93		
ETHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D		
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	OPTH TO \$ FT.		
OGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A	Δ	SITE: 16 - Wastewater Pint.		
SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PAG	ΓΗΟ! SYM!	SOIL CLASS GOTA -9/SMOTA WELL DATA		
24/24			СН		
0 CL	AY - SAA.		12,12,16		
70— 0 CL	AY - SAA, some fine sand.		CH 11,10,18,24		
75— 14/24 SA	AY (3") – gray, moderately stiff, ND (9") – gray, fine to coarse, p y dense, saturated.		CH 60,85,refusi		
0 SA	NDY CLAY - gray, low plasticity.		CL 24,26,22,15		
	NDY SILT – olive gray, very fine derately dense, moist.	, poorly graded,	ML 29,41,46,52		
90— 12/24 (3 de	_T (6") - olive green, dense, slig ") - light olive gray, very fine, po nse, moist. SANDY SILT (3") - o ist.	porly graded, very	ML 57,59,55,70		
	ND – olive gray, fine, poorly gradine silt, saturated.	ded, very dense,	SP 61,refusal		
	NDY SILT – olive green to gray, agments, moist.	very dense, shell	60,82,96,ref		

TITLE: NAVAL AIR STATION WHITING	FIELD	of WELL: WHF-16-2D)	BORI	NG NO. WHF-16-20	
CLIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED:	02/09/93		COMPLTD: 03/4	/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N.	/A	PROTE	CTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262F	Т.	DPTH	TO Ç FT.	
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE:	N/A		SITE:	16 – Wastewater F	int.
DEPTH FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT Continued from F	S	LITHOLOGIC SYMBOL	SOIL CLASS	8LOWS/6-IN	WELL DATA
24/24			///	ML		
05— 0 SA	ANDY SILT - SAA, saturated.		///	ML.	86.75,ref	
10— 24/24	.AY - dark gray, stiff, high plas	sticity, dry,		СН	22,22.24,31	
24/24 O CL	AY - SAA.			СН	18,20,29,37	
20— 24/24 O CL	AY - SAA.			CH	18,20,28,43	
25—						
30— - 24/24 0 S _s	AND (6") – gray, fine to medium aturated. CLAY (1.5') – gray, fi	n, poorly graded, irm, plastic.		СН	33,31,48,ref	
235— 0 0	_AY — gray, moderately stiff, p	lastic.		СН	12,17,22,35	
40—		·		·		

		f WELL: WHF-16-2D		NG NO. WHF-16-2D	
LIENT: SOUTHNAVFACENGCOM ONTRACTOR: Groundwater Protection 1		DATE OTABLES OF 100		ECT NO: RI PHASE IIA	
		DATE STARTED: 02/09		COMPLTD: 03/4/93	
ETHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A		CTION LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH; 262FT.		TO \$ FT.	
OGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N.			16 - Wastewater Pint.	······································
RECOVERY (ppm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from PA	O B J J J J J J J J J J J J J J J J J J	SYMBOL SOIL CLASS	8LOWS/6-IN	WELL DATA
	Y - SAA.		CH	37,40,35,35	
24/24	'Y SAND – gray, dense, trace (SM	52,50,refusi	
	DY SILT – gray, fine, poorly gr ments, saturated.	aded, shell	ML	23,35,53,ref	
5—					

			LUG 0	F WELL: WHF-16-21		BOR	ING NO.	
CLIENT: SOUTHNAVE	ACENGCOM					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Ground	water Protectio	n Inc.		DATE STARTED:	02/18/93		COMPLTD: 02/18	3/93
METHOD: MUD ROTARY	Y	CASE SIZE: 2"		SCREEN INT.: 11	′-127 FT	PROTE	ECTION LEVEL: D	
TOC ELEV.: 80.71 FT.		MONITOR INST.: 0	DVA	TOT DPTH: 127.5F	Т.	DPTH	TO ♀ 36.52 FT.	
LOGGED BY: R. Nelso	n	WELL DEVELOPME	NT DATE:			SITE:	16 - Open Disposa	al/Burn A
L LABORATORY WE SAMPLE ID. WE	RECOVERY HEADSPACE (ppm)		OCK DESCRIPT D COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	St	EE WHF-16-2D FOR F	ULL LITHOLO	OGIC DATA.				
20								
25—								"
35—								
45—								"
50—								
55—								
65								

	TION WHITIN	ro Liern	OG of WELL: WHF-16-2I			NG NO.	·
LIENT: SOUTHNAVFA	CENGCOM				PROJ	ECT NO: RI PHASE	
ONTRACTOR: Groundw	ater Protect	on Inc.	DATE STARTED: 0	2/18/93		COMPLTD: 02/18	/93
ETHOD: MUD ROTARY		CASE SIZE: 2"	SCREEN INT.: 117	-127 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 80.71 FT.		MONITOR INST.: OVA	TOT DPTH: 127.5F	Г.		TO ♀ 36.52 FT.	
OGGED BY: R. Nelson		WELL DEVELOPMENT DAT	ΓE:		SITE:	16 – Open Disposa	al/Burn Are
L L LABORATORY AND SAMPLE ID. WY	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DES AND COMM Continued fro	ENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
75—							
115—	06/24 N/A	SAND - ligh brown, medium, p purple lamina.	oorly graded, saturated,		SP	12,18,18,37	
20-	08/24 N/A	SAND - SAA.			SP	38,30,60,48	
125—	16/24 N/A	SAND - tan, medium, poorly (graded, trace gravel,		SP	20,20,20,24	

TITLE: NAVAL AIR STATION WHITING F	LOG of WE	ELL: WHF-16-2S	BORII	NG NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJE	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection Is	nc. D	ATE STARTED: 02/21/93		COMPLTD: 02/2	1/93
METHOD: HSA	CASE SIZE: 2" S	CREEN INT.: 31-46 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 83.75 FT.	MONITOR INST.: OVA	OT DPTH; 46FT.	DPTH	TO 및 39.41 FT.	
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE:	16 - Open Disposa	al/Burn Are
DEPTH FT. TT. GI BIGMASS AMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
10	WHF-16-2D FOR FULL LITHOLOGI	C DATA.			
20—					
30	D — white, very fine to fine, poorly	graded, dry.	SP	3,3,5,8	
35 0 SANE	D - SAA, trace silt.		SP	7,4,6,11	
	white, very fine to coarse, poor rated.	orly graded,	SW	5,3,4,7	
45—		•			

ITLE: NAVAL AIR STATION WHITI	NO FIELU	LOG of	WELL: WHF-16-3D		BORI	NG NO.	
LIENT: SOUTHNAVFACENGCOM					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protect	ion Inc.		DATE STARTED: 01	/22/93		COMPLTD: 01/26	/93
ETHOD: MUD ROTARY	CASE SIZE: 2"		SCREEN INT.: 105-	115 FT	PROTE	ECTION LEVEL: D	
OC ELEV.: 51.47 FT.	MONITOR INST.: OVA		TOT DPTH: 115FT.		DPTH	TO ¥ 10.32 FT.	
OGGED BY: W. Colby-George	WELL DEVELOPMENT	DATE:			SITE:	16 - S.W. Landfill	
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK (AND CO	DESCRIPT IMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	SAND – light brown, well so	orted.			SP		
10—	SAND - some fines, wet.				SP		
15—	SAND - red brown.				SP		
20—	SAND - SAA				SP		
25—	SAND - yellow to tan.				SP		
30—	SAND - yellow to purple, f	fine.			SP		
35—	SAA				SP	·	
40—		1 of 16			_SP	TAL SERVICES	

IILE. NAVAC AIR 3	TATION	WHITIN	G FIELD	LOG o	f WELL: WHF-16	-3D	BORI	NG NO.	
LIENT: SOUTHNAVE	ACENGO	ОМ					PROJE	ECT NO: RI PHASE	IIA
CONTRACTOR: Ground		rotectio	on Inc.		DATE STARTE	ED: 01/22/93		COMPLTD: 01/26	/93
METHOD: MUD ROTAR			CASE SIZE: 2"		SCREEN INT.	105-115 FT	PROTE	CTION LEVEL: D	···
TOC ELEV.: 51.47 FT.			MONITOR INST.: 0V		TOT DPTH: 115	FT.		TO ¥ 10.32 FT.	
OGGED BY: W. Colby			WELL DEVELOPMEN	T DATE:			SITE:	16 - S.W. Landfill	
L LABORATORY W W W W W W W W W W W W W W W W W W W	RECOVERY	HEADSPACE (ppm)		K DESCRIPT COMMENTS I from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			AA				SP		
45—		s	AND – white, medium.				SP		*
		·	AND - yellow brown, so	me fine, tra	ace gravel.		SP		
55—		S	AA				SP		12121212121
		C)	AA				SP	·	
55		S	AA				SP		
0—		g	AA				SP		
75—		s	AND - fine sand, purple	gravel.			SP		

AND COMM CONTINUED ROTARY DIC ELEV.: 51.47 FT. DIGGED BY: W. Colby-George LABORATORY SAMPLE ID.	SCREEN IN TOT OPTH: TE: SCRIPTION MENTS OM PAGE 2	RTED: 01/22/93 HT.: 105-115 FT H15FT. D19070H117	PROTEC	CT NO: RI PHASE COMPLTD: 01/26 CTION LEVEL: D TO \$\foatstyle{1}\$ 10.32 FT. 6 - S.W. Landfill BLOWS/6-IN	
CASE SIZE: 2" DC ELEV.: 51.47 FT. DGGED BY: W. Colby-George WELL DEVELOPMENT DATE OF AND COMM Continued from SAND - yellow, medium to coast	SCREEN IN TOT OPTH: TE: SCRIPTION MENTS OM PAGE 2	NT.: 105-115 FT	DPTH T SITE: 1	CTION LEVEL: D O 10.32 FT. 6 - S.W. Landfill	
MONITOR INST.: OVA DGGED BY: W. Colby-George WELL DEVELOPMENT DA SOIL/ROCK DES AND COMM Continued fro SAMPLE ID. SAMPL	TOT OPTH: SCRIPTION SENTS OM PAGE 2	115FT.	DPTH T SITE: 1	TO 및 10.32 FT. 6 - S.W. Landfill	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
DOGGED BY: W. Colby-George WELL DEVELOPMENT DA SOIL/ROCK DES AND COMM Continued fro SAA SAA	TE: SCRIPTION MENTS OM PAGE 2		SOIL CLASS	6 – S.W. Landfill	7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1
L' LABORATORY BE SOIL/ROCK DES AND COMM Continued from SAND - yellow, medium to coal	SCRIPTION MENTS OM PAGE 2	LITHOLOGIC	SOIL CLASS		" " " " " " " " " " " " " " " " " " "
SAND - yellow, medium to coa	MENTS OM PAGE 2	LITHOLOGIC SYMBOL	1108 %	BLOWS/6-IN	2 15 15 15 15 15 15 15 15 15 15 15 15 15
SAND - yellow, medium to coa					
			SP		
			SP		
5— SILTY SAND - gray, clay 6".			SM		
O— SAA, no clay.			SM		
5— SAA			SM	1	
SILTY SAND - gray, clay, ve	ery plastic.		SM		
15			SP		

			1000	of WELL: WHF-16	-21	BOKI	NG NO.	
LIENT: SOUTHNAVFACEN	СОМ					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater	Protection	Inc.		DATE START	ED: 01/26/93		COMPLTD: 01/26	/93
ETHOD: MUD ROTARY		CASE SIZE: 2"		SCREEN INT.	: 45-50 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 51.54 FT.		MONITOR INST.: OVA	١ .	TOT DPTH: 22	2FT.	ОРТН	TO ♀ 13.04 FT.	
DGGED BY: W. Colby-Geo	rge	WELL DEVELOPMENT	DATE:			SITE:	16 - S.W. Landfill	
RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIP COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		EE WHF-16-3D FOR LITH	HOLOGIC	AL DESCRIPTIO				

LIENT: SOUTHNAVFAC	ENGCOM		200 01	WELL: WHF-16-3II			ING NO. JECT NO: RI PHASE	IIA
ONTRACTOR: Groundw		tian Inc.		DATE STARTED: 0	1/25/93	1	COMPLTD: 01/25/	
ETHOD: NUD ROTARY		CASE SIZE: 2"		SCREEN INT: 75		PROT	ECTION LEVEL: D	
OC ELEV.: 51.31 FT.		MONITOR INST: OVA	dept.	TOT DPTH: 80FT.		OPTH	TO ¥ 13.38 FT.	
OGGED BY: W. Colby-	George	WELL DEVELOPMENT		· · · · · · · · · · · · · · · · · · ·			: 16 - S.W. Landfill	
I INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5—		SEE WHF-18-3D FOR LITH	HOLOGICA	L DESCRIPTION.				

		· · · · · · · · · · · · · · · · · · ·	100 01 HE	LL: WHF-18-3II			NG NO.	
IENT: SOUTHNAVF			· · · · · · · · · · · · · · · · · · ·			PROJ	ECT NO: RI PHASE	
NTRACTOR: Ground				TE STARTED: 0		· 	COMPLTD: 01/25	/93
THOD: MUD ROTAR		CASE SIZE: 2"	SC	REEN INT: 75-	-80 FT		CTION LEVEL: 0	
C ELEV.: 51.31 FT.		MONITOR INST: OVA	ТО	T OPTH: 80FT.			TO ¥ 13.38 FT.	
GGED BY: W. Colby	-George	WELL DEVELOPMENT	DATE:			SITE:	16 - S.W. Landfill	
INTERVAL SAMPLED	RECOVERY HEADSPACE (ppm)	AND C	DESCRIPTION OMMENTS from PAGE	1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA

	25100011	To a second the second	LUG 01	WELL: WHF-16-3S			NG NO. ECT NO: RI PHASE	TIA.
CONTRACTOR: Groundw		un Inc		DATE STARTED: 0	11/22/93	FROM	COMPLTD: 01/22	
METHOD: HSA	ater Frotectio	CASE SIZE: 2"		SCREEN INT.: 5-		PROTE	CTION LEVEL: D	
		MONITOR INST.: OVA		TOT DPTH: 22FT.			TO 및 13.65 FT.	
OCCEP BY: N. Colbus	Coordo	WELL DEVELOPMENT		101 DFTH, 22FT.			16 - S.W. Landfill	
OGGED BY: W. Colby-		WELL DEVELOPMENT	DATE.		ن. د	ļ		
L LABORATORY WE SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	9	SEE WHF-16-3D FOR LITH	HOLOGICA	L DESCRIPTION.		SP SP		
20						SP		
30—								
40—				·				

TITLE: NAVAL AIR STATION WHITING	LOG c	of WELL: WHF-16-4D		BORI	NG NO. N/A		
CLIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 02/	/02/93	COMPLTD: 02/18/9		3/93	
METHOD: MUD ROT.	CASE SIZE: 6" & 2"	SCREEN INT.: 109-1	119 FT	PROTE	ECTION LEVEL: D		
FOC ELEV.: 52.95 FT.	MONITOR INST.: OVA	TOT DPTH: 121FT.		DPTH	TO ¥ 14.16 FT.		
OGGED BY: M. Alvarez	WELL DEVELOPMENT DATE:			SITE:	16 - Wastewater P	ilt.	
SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
	.TY SAND - Light brown, poorly stic, loose, moist.	graded, slightly		SM	3,5,7,18	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
7 22/24 0 Sai	ne As Above, yellowish brown, 1	in. clay lense.		SM			
	ND – tan to reddish brown, fine sandy silt, loose, and wet.	to medium, 2" layer		SP		121212121	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
10/24 < 1 SA	ND - tan, fine, poorly graded, l	pose, wet.		SP			
	ND – tan, fine to coarse, little t , well graded, loose, wet.	fine gravel, trace		SW		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 1 1 1 1 1 1
704/24 1 SA	NO - tan, coarse, loose, poorly	graded, wet.		SP		1 2 2 2 2 2	12 12 12 12 11
	ND - tan, coarse, some medium aded, wet.	to fine sand, well		SW		414141414	71212121
- - 40	me As Above.			SW		"4" 4" 4" 4"	
	PAGE 1 of 16	MWO4D ABB FI	NVIRON	JMENT	TAL SERVICES	INC	

				LOG of	WELL: WHF-16-4D		BORIN	IG NO. N/A	
LIENT: SOUTHNAVE	ACENGO	ОМ					PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Ground	lwater P	rotect	ion Inc.		DATE STARTED: 0	2/02/93		COMPLTD: 02/18	3/93
ETHOD: MUD ROT.			CASE SIZE: 6" & 2"		SCREEN INT.: 109	-119 FT PROTECTION LEVEL: D			
OC ELEV.: 52.95 FT.			MONITOR INST.: OVA		TOT DPTH: 121FT.		DPTH 1	r o ♀ 14.16 FT.	
OGGED BY: M. Alvar	ez		WELL DEVELOPMENT DA	NTE:			SITE: 1	6 - Wastewater P	it,
E L. LABORATORY L. SAMPLE ID. V	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DE AND COMP Continued fr	MENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]									[4]
	12/24	- 1	SAND – purple to yellow, fine graded, wet.	e, trace	e silt, poorly		SP		12121
6-									2 2
	08/24	2.5	SAND - pinkish tan, fine to met.	nedium,	poorly graded,		SP		
51—							SP		28,28,2
6—	08/24	2.5	Same As Above.				5r		
	08/24	5	SAND - tan to purple, fine to fragments.	o coars	se, with shell		SP		"
	08/24	0	CLAY - grey and red mottle	d firm,	plastic.		CL		4" 4" 4"
6—	24/24	0	CLAY - grey, lenses of purp sand, firm, very plastic.	le and	orange very fine				
	08/24	< 1	SAND - light tan, fine, poorly	y grade	ed, trace silt, wet.		SP	3,5,4,3	
/1— 			CLAY - light tan, low plastici	ity, sha	irp contact at 74		CL/SP		
6—	20/24		ft. to SAND, moderate redd poorly graded.					1,1,2,4	
81—	18/24		SAND – yellowish orange, fin graded, wet.	ne to si	ome medium, poorly		SP	11,22,24,27	

				LOG of	WELL: WHF-16-4D		BORI	NG NO. N/A	
LIENT: SOUTHNAVFA							PROJ	ECT NO: RI PHASE	
CONTRACTOR: Grounds	water Pro	otection ————	r		DATE STARTED:			COMPLTD: 02/18	3/93
METHOD: MUD. ROT.			CASE SIZE: 6" & 2"		SCREEN INT.: 10			ECTION LEVEL: D	-
TOC ELEV.: 52.95 FT.			MONITOR INST.: OVA		TOT DPTH: 121FT.			TO ♀ 14.16 FT.	
.OGGED BY: M. Alvare			WELL DEVELOPMENT	DATE:	· · · · · · · · · · · · · · · · · · ·		SITE:	16 - Wastewater P	it.
L LABORATORY L SAMPLE ID. W	RECOVERY	(mdd)	SOIL/ROCK AND CO Continued	DMMENTS	-	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	12/24 -		ND - purple to brown, finded, wet.	ine to med	dium, poorly		SP	4,8,10,14	
57—	24/24	O SAI	ND – tan to purple, fine	, poorly g	raded.		SP	15,26,22,18	
2—	22/24		ND – tan to greyish bro t, some coarse at 90 ft.		poorly graded,		SP	14,18,18,15	
7—	18/24	2 SAI	ND – tan to purple, fine	, poorly g	raded, wet.		SP	13,23,22,24	
2—	23/24		ND – tan to yellowish or t, some coarse.	range, find	e, poorly graded,		SP	13,17,27,29	
7—] - -	06/24	0 Sar	πe As Above.				SP	5,4,3,3	
12—	20/24 -		ND – greyish purple, ye ided, wet.	llow band:	s, fine, poorly		SP		
17—	07/24 -	sor	ND - yellowish orange, ted to 119 ft., over 3 in. er 9 in. of CLAY, grey,	of purple	e angular gravel,		CL	DROP	
22_									

TITLE: NAVAL AIR ST. CLIENT: SOUTHNAVFA		FIELD	LOG o	f WELL: WHF-16-4II			NG NO.	TIA
CONTRACTOR: Groundy		Inc	DATE STARTED: 02/04/93		PROJECT NO: RI PHASE IIA COMPLTD: 02/05/93			
METHOD: MUD ROTARY		CASE SIZE: 2"	SCREEN INT.: 50-60			PROTE	CTION LEVEL: D	
TOC ELEV.: 53.06 FT.		MONITOR INST.: 0VA					TO ¥ 14.19 FT.	······
LOGGED BY: G. Kanch	ihhatla	WELL DEVELOPMENT		101 81 111 00.01			16 - S.W. Landfill	
L LABORATORY AND SAMPLE ID. SAMPLE ID. SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK		TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—————————————————————————————————————	PLI	EASE REFER TO 16-40 AY - gray, red to yello				CL	2,2,4,8	

TITLE: NAVA	L AIR ST	ATION	WHITI	NG FIELD	LOG of	WELL: WHF-16-49	6	BOR	ING NO.	
CLIENT: SOU	THNAVFA	CENG	СОМ					PRO	JECT NO: RI PHASE	E IIA
CONTRACTO	C Groundw	rater I	Protec	tion Inc.		DATE STARTED:	02/03/93		COMPLTD: 02/0)4/93
METHOD: HS/				CASE SIZE: 2"		SCREEN INT.: 5-		PROT	ECTION LEVEL: D	
TOC ELEV.: 5				MONITOR INST.: OVA		TOT DPTH: 21FT.			I TO ¥ 16.66 FT.	
LOGGED BY:	N. Hagiin		411	WELL DEVELOPMENT	UAIE:			<u> </u>	: 16 - Open Dispos	al/Bur
E LABORA	TORY H	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPTIONMENTS	CON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	7	18/24	0	SILTY SAND - fine, ash, g SILTY SAND - reddish bro with a 2" lens of light grey moist.	own, fine, p	poorly graded		SM	6,9,12,14 15,17,20,24	
10-	7	12/24	0	Same as above, grey silty	lenses at	depth.		SM	7,16,17,15	
15—	7	22/24	0	Same as above, tan to rec	ddish brow	n, saturated.		SM	2,4,5,7	
20—										
25—										
30-										
35—										

		LOG of WELL: WHF-16-	•	BOR	ING NO.	
LIENT: SOUTHNAVFACENC	GCOM			PRO	JECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater	Protection Inc.	DATE STARTED	7/27/93		COMPLTD: 7/27	/93
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.:	0-10 FT	PROT	ECTION LEVEL: D	
OC ELEV.: FT.	MONITOR INST.: 0	/A TOT DPTH: 10F	Γ	DPTH	I TO ♀ 1.2 FT.	
OGGED BY: S. Consalvi	WELL DEVELOPMEN	T DATE:		SITE	: 16 Flood plain	
SAMPLE ID. SAMPLE ID. SAMPLE ID.	HEADSPACE (Ppm)	CK DESCRIPTION COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	1 1	KEN DURING INSTALLATION DCATED IN THE FLOOD PLAT (HAND.	1 1			
0-						
5—						
0						

TITLE: NAVAL AIR	STATION	MUTITIME	3 LIEFA	LOG of WELL: WHF	-17-IS	BOR	ING NO.	
CLIENT: SOUTHNA	/FACENG(СОМ				PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Grou		Protectio		DATE STA	RTED: 7/16/93		COMPLTD: 7/27	/93
METHOD: MUD ROTA	IRY .		CASE SIZE: 6"/2"	SCREEN I	NT: 98-113 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 195.49			MONITOR INST.: OVA	ТОТ ПРТН	: II5FT.		TO ♀ III.45 FT.	
LOGGED BY: N. Rol	(a/G. Wall		WELL DEVELOPMENT	DATE:		SITE	17 - Fire Training	·
L LABORATORY	RECOVERY	HEADSPACE (ppm)		DESCRIPTION OMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/8-IN	WFII DATA
						;		4 4 4 4 4
5—	24/24	0.2 _G	RAVELLY SILT - red, fir	π to saft, maist.	0.0	GM	4,9,5,6	a.
10—	16/24		AND — red, tine, poorly g oist.	raded, medium dense,	7674	SP	4,6,5,6	W W W
5—	14/24		AND – light tan, fine to m edium dense, slightly mois			SP	7,10,11,18	W. W. W. W.
o—	12/24		AND – red, fine to mediur oderately dense to dens		ar.	SP	11,19,21,27	1
5	18/24		AND – whitish green to p porly graded, dense, dry.			SP	14,19,27,33	
) 	12/24		AND – pinkish tan, very f aded, dense, moist.	ine to medium, poorly		SP	11,23,24,26	
5—	24/24	۱.,	.AY – gray to purple, fat .AYEY SAND – purple, lo		====	СН	3,4,5,9	
	21/24	SA	AND – very fine to fine, pense, damp.			SP	9,10,10,12	
ا ا ا		l				SP		\ <u>\</u>

TITLE: NAVAL AIR STATION WHITING	LOG of	WELL: WHF-17-1S	BOR	ING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJ	IECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 7/16/93		COMPLTD: 7/27/93		
METHOD: MUD ROTARY	CASE SIZE: 8"/2"	SCREEN INT. 98-113 FT	PROT	PROTECTION LEVEL: D		
TOC ELEY.: 185.48 FT.	MONITOR INST: OVA	TOT DPTH: 115FT.	DPTH	TO ¥ III.45 FT.		
LOGGED BY: N. Roka/G. Walker	WELL DEVELOPMENT DATE:		SITE	17 - Fire Training		
DEPTH FT. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAI	THOI	SOIL CLASS	BLOWS/6IN	WELL DATA	
SA	ND — very pale orange, very fine ded, moist		SP	8,8,10,12		
45————————————————————————————————————	me as above, trace of clay, botto	om 6" wet.	SP	8,4,8,9		
- 24/24 O spi	AYEY SAND — medium tan with occ atch, very fine to fine, wet, mediu e clay.		- sc	4,4,4,5		
- 24/24 0 SA	AY – very pale orange, red mottli ND – very pale orange with reddi fine, well sorted, maist.		CL/SP	20,22,29,27		
	ND — very pale orange, fine, poor y stiff.	ly graded, moist,	SP	32,35,37,31		
85— - - - - - - - - - - - - -	me as above, clay lens 4" from bo	ottom.	SP	17,19,22,23		
70— 10/24 0 Sa	me as above.		SP	32,37,39,41	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
75————————————————————————————————————	me as above.		SP	29,32,37,40	20 20 20 20 20	
80—	PAGE 2 of 17N	MW1S ABR FNVIF	SP SONMEN	TAL SERVICES.	INC.	

TITLE: NAVAL AIR STATION WHITING F	LOG of	WELL: WHF-17-1S	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection 1	Inc.	DATE STARTED: 7/16/93	COMPLTD: 7/27/93	
METHOD: MUD ROTARY	CASE SIZE: 6"/2"	SCREEN INT: 98-113 FT	PROTECTION LEVEL: D	
TOC ELEV.: 195.49 FT.	MONITOR INST: OVA	TOT OPTH: HISFT.	DPTH TO ♀ III.45 FT.	
LOGGED BY: N. Roka/G. Walker	WELL DEVELOPMENT DATE:	•	SITE: 17 - Fire Training	
DEPTH SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAG	FFOI	SOIL CLASS Broke-in	WELL DATA
	e as above, mottled moderate pi		SP 20,19,32,43	
7/24 O Sam	e as above.		SP 31,37,41,43	
	D – very pale orange, fine to me very dense.	dium, well sorted,	SP 39,38,41,47	
5/24 0 SAN wet.	D – very pale orange, line to me	dium, well sorted,	SP 48,50,-	
5/24 O Same	e as above, saturated.		SP 49,50,50,-	
	e as above, angular to subangula icals.	ir sand	SP 26,28,39,50	
10				T T
15—				

TITLE: NAVAL AIR STATION WHITING FIELD	LOG of WELL: WHF-17-	-2	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI	PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.	DATE STARTE	ED: 2/23/93	COMPLTD: 3/07/93		
METHOD: HSA CAS	E SIZE: 2 in. SCREEN INT.:	: 104-119 FT	PROTECTION LEV	EL: D	
TOC ELEV.: 197.47 FT. MON	ITOR INST.: OVA TOT DPTH: 120	OFT.	DPTH TO \$ 114.21 F	 F Т.	
OGGED BY: G. Kanchibhatla, R. Nelson WEL	DEVELOPMENT DATE:		SITE: 17 - Fire Tr	aining	
DEPTH FIT. SAMPLE SAMPLE COLEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHCLOGIC SYMBOL	SOIL CLASS BROWN	WELL DATA	
5— 0 SANDY C	.AY — birck red, soft, slightly moist.		SC 2,3,3,	4	
0 SANDY C	LAY - SAA.		SC 4,7,8,1	10	
15 O SAND - b	rick red, very fine to fine, poorly graded 7.		SP 2,4,5,	5	
0 SAND - S	SAA, white to light red.		SP 3,5,8,1	14	
	white to light red, fine to medium, some rell graded, dry.		SW 6,12,10	0,8	
30 O SANDY C	LAY – purple to yellow to white bands, so , moist.	oft,	5,4,6,	8	
35 0 SANDY C	LAY - SAA, moist.		SC 2,3,4,	.4	
40—			3,4,6,	.8	

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TITLE: NAVAL AIR STATION WHITING F	LOG of	f WELL: WHF-17-2	BORI	NG NO.		
CLIENT: SOUTHNAVFACENGCOM		4	PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/23	3/93	COMPLTD: 3/07/93		
METHOD: HSA	CASE SIZE: 2 in.	SCREEN INT.: 104-11	9 FT PROTE	PROTECTION LEVEL: D		
TOC ELEV.: 197.47 FT.	MONITOR INST.: OVA	TOT OPTH: 120FT.	DPTH	TO ¥ 114.21 FT.		
OGGED BY: G. Kanchibhatla, R. Nelsor	WELL DEVELOPMENT DATE:		SITE:	SITE: 17 - Fire Training		
DEPTH To FT. To Sample Sample RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	rion S	SYMBOL SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
20/24 O CLA	Y - brick red, purple to yellowis Y - gray, moderately stiff, plas Y - gray, moderately stiff, plas	etic.	CL	8,9,11,14 9,6,9,11		
24/24 poo	TY SAND — purple to white, mot rly graded, saturated. CLAY {4 t, plastic.		SM/CH	5,5,4,12		
	ID – off-white to yellow, fine to ded, moist.	coarse, poorly	SP	21,22,19,24		
50	ID — white, fine to coarse, poor	ly graded.	SP	22,23,23,25		
05— 14/24 N/A SAN	ND - SAA.		SP/CH	19,22,20,24		
70— 14/24 0 SAN	ND - SAA, red sand lense (1/4")), dry.	SP	12,12,19,23		
75— 0 SAN	ND ~ white, fine, poorly graded,	dry.	SP	23,28,34,45		
30						

				LOG of	WELL: WHF-17-2		BORIN		
IENT: SOUTHNAVI					T	2 (0 2 (0 2	PROJE	CT NO: RI PHASE	
ONTRACTOR: Groun	dwater P	rotect			DATE STARTED: 2/23/93		COMPLTD: 3/07/93		
ETHOD: HSA			CASE SIZE: 2 in.		SCREEN INT.: 10			CTION LEVEL: D	
OC ELEV.: 197.47 F			MONITOR INST.: OVA		TOT DPTH: 120FT			ro 및 114.21 FT.	
OGGED BY: G. Kan	chibhatla		ISON WELL DEVELOPMENT	DATE:			L	17 - Fire Training	
L' LABORATORY L WANTE ID. WANTE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK I AND CO Continued f	MMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	14/24	N/A	SAND - SAA, 4" pink sand,	, trace si	lt, moist.		SP	20,21,16,15	
5	20/24	N/A	SANDY SILT (4") - pink, s light brown, fine, poorly gra soft, plastic. SAND (3") - graded.	aded. Cl	.AY (3") - gray,	\$ S	P/SM/CH	20,25,38,44	
0	16/24	N/A	SAND - white to light brow slightly moist.	ın, fine, p	oorly graded,		SP	54,60,refusl	
5—	14/24	N/A	SAND - light tan, medium t moist.	o coarse	, poorly graded,		SP	30,28,45,57	
0	24/24	N/A	SILTY SAND - tan, black trace clay, soft, plastic, m		fine, trace coarse,		SM	47,24,66,ref	
5	06/24	5	SAND - tan, well graded, s	saturated	1.		SW	35,refusal	
10—	20/24	1	Description N/A.			• • •	SW	21,21,33,45	
15	18/24	2	SAND - tan, medium, poort	ly graded	1.		SP	48,32,23,30	

TITLE: NAVAL AIR STATION WHITING	LOG of WELL: WHF-17-3	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc. DATE STARTED: 7.	7/13/93 COMPLTD: 7/14/93
METHOD: HSA	CASE SIZE: 2 in. SCREEN INT.: 109	9-124 FT PROTECTION LEVEL: D
TOC ELEV.: 201.82 FT.	MONITOR INST.: OVA TOT OPTH: 125FT.	. ОРТН ТО 🖫 117.7 FT.
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:	SITE: 17 - Fire Training
DEPTH FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	SOIL CLASS SOIL CLASS SOIL CLASS SAMBOL SOIL CLASS SAMBOL SOIL CLASS
	TY SAND – orange, tine, poorly graded, loose, , subrounded.	3,3,4,4
	AYEY SAND — red, fine, some silt, poorly graded, dium dense, dry, orange, mottling.	3,7,8,11
	TY SAND – red, fine to medium, poorly graded, dium dense, dry, subrounded to subangular.	7,11,7,9
1	ND – light orange, fine to medium, poorly graded, dium dense.	SP 4,8,14,20
 	ND — light yellow, fine to medium, poorly graded, dium dense, dry.	7,10,14,18
30—		
	TY SAND – light pink, trace clay, poorly graded, dium dense, moist, subrounded.	SM 15,11,10,11
	ND — light pink, very fine to medium, poorly graded, dium dense, dry, subrounded.	SP 5,9,18,18
450	PAGE 1 of 17MW3 ABB B	io,8,8,8 ENVIRONMENTAL SERVICES, INC.

TITLE: NAVAL AIR STA	ATION WHITI	IG FIELD	.LOG of WELL: WHF-17-3		BORI	NG NO. N/A	
CLIENT: SOUTHNAVFA	CENGCOM				PROJE	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundy	vater Protect	on Inc.	DATE STARTED:	7/13/93		COMPLTD: 7/14/	93
METHOD: HSA		CASE SIZE: 2 in.	SCREEN INT: 10	9-124 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 201.82 FT.		MONITOR INST: 0VA	TOT DPTH: 125F	۲.	DPTH	TO ¥ 117.7 FT.	
OGGED BY: N. Roka		WELL DEVELOPMENT	DATE:		SITE:	17 - Fire Training	
SAMPLE ID. S	RECOVERY HEADSPACE (ppm)	AND C Continued	DESCRIPTION OMMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	20/24	SANDY CLAY — light pink, moderately loose, slightly	maist, low plasticity.		SC	E 1E 12 20	
	20/24	moist. SAND – white to arange, i dry, subrounded.	ND – white to arange, fine, poorly graded, dense, , subrounded.		SP	5,15,13,20	N av av av a
55	24/24	Same as above, very fine	to fine.		SP	WOR,13,20,27	12121212
7	24/24	Same as above, fine to me	edium.	2222	SP	16,19,17,29	12121212
35—	24/24	SAND — fine to medium, po dry, subrounded. SILTY SAND — pinkish gra SAND — very fine to fine,		12:12:1	SP	12,12,18,22	1 = 11 = 11 = 1
70	1.0	dense, dry, subrounded.	nite, fine to medium, poorly		SP	14,18,15,18	1 2 1 2 1 2 1
75—	0.5		D — white to orange, very fine to fine, poorly ded, dense, dry, subrounded to subangular.		SP	18,27,34,37	- N = N = N = N
30-	22/24	SAND – gray, very fine to subrounded.	□ – gray, very fine to fine, poorly graded, dry, ounded.		SP	17,19,16,21	1 21 21 21 21
35—	1.0	SAND – light tan to pink, dense, dry, subangular.	ID – light tan to pink, fine, poorly graded, very se, dry, subangular.		SP	14,22,35,28	

ITTLE. NAVAL A	IR STATION W	11 I ING 1	LOG	of WELL: WHF-17-3		BOR	ING NO. N/A		
CLIENT: SOUTH	IAVFACENGCOI	4				PRO	JECT NO: RI PHASE	E IIA	
CONTRACTOR: G	oundwater Pro	tection	Inc.	DATE STARTED:	7/13/93		CONPLTD: 7/14/	/93	
METHOD: HSA			CASE SIZE: 2 in.	SCREEN INT.: 10	9-124 FT	PROT	PROTECTION LEVEL: 0		
TOC ELEV.: 201.6	32 FT.		MONITOR INST: OVA	TOT DPTH: 125FT		DPTH	TO ¥ 117.7 FT.		
LOGGED BY: N.	Roka		WELL DEVELOPMENT DATE:			SITE	17 - Fire Training	Í	
L LABORATOR SAMPLE ID	SAMPLE RECOVERY HEADSPACE	(mdd)	SOIL/ROCK DESCRIF AND COMMENTS Continued from P	3	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA	
95—	20/24		me as above, trace medium. me as above, light tan, subroun	ded.		SP	WOR,45,80,87		
100-	20/24		ND — purple, medium, poorly gra v, subrounded to subangular.	ded, very dense,		SP	40,45,38,41	M = M :	
105-	24/24	0.5			• • •	SW	18,22,20,20	N	
110	24/24).5 Sa	me as above, yellow grading to	rust at 0.75 ft.	• • •	SW	21,23,19,22		
115	24/24	6 Sa	me as above, rust, saturated.		• • •	SW	WOR,20,21,19		
120-							·		
125—									
130									

TITLE: NAVAL A	AIR STA	TION	WHITI	NG FIELD	LOG of	WELL: WHF-18-2		BORI	ING NO.		
CLIENT: SOUTH	NAVFA	CENGO	ОМ					PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: 0	Groundw	ater P	rotec	tion Inc.		DATE STARTED: 2/	/21/93		COMPLTD: 2/22/	93	
METHOD: MUD R	OTARY			CASE SIZE: 2 in.		SCREEN INT.: 90-	105 FT	PROT	ECTION LEVEL: D		
TOC ELEV.: 164	.84 FT.	·		MONITOR INST.: OVA		TOT DPTH: 107FT.		DPTH TO ₹ 96.02 FT.			
L OGGED BY: G.	. Kanchi	bhatla		WELL DEVELOPMENT	DATE:			SITE	18 - Fire Training		
E LABORATO	RY.		ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA				
-											
5—		20/24	0	SAND – tan to dark tan, v graded, loose, dry.	very fine	to fine, poorly		SP	2,3,2,3	2 2 2 2	
10		18/24	0	SAND - SAA, yellowish or	ange.			SP	3,4,5,8	121212121	
15		18/24	0	SAND - SAA, white w/ ye	ellowish ora	ange bands.		SP	5,10,11,14		
20—		16/24	0	SAND – yellowish orange, moderately dense , trace		edium, well graded,	• • •	SW	7,10,10,11	21 21 21 21 21 21	
25—		18/24	0	SAND (4") - yellowish or loose, trace silt, dry. SA purple, dry. SAND (12") poorly graded, loose, dry	NDY CLAY	(2") - light		SP	7,9,10,11	211 211 211 211	
30	7	18/24	0	SAND - white to ligh yellobands, very fine, trace c dry.	ow and ye			SP	5,6,8,10		
35—	7	18/24	0	SAND - yellowish orange loose, dry.	to tan, fi	ne, poorly graded,		SP	6,11,11,15	2" 2" 2" 2" 2" 2	
40—			0			•		CL/SP	2,8,12,12	. N _ A A	

TITLE: NAVAL AIR STATION WHITING	FIELD LOG o	f WELL: WHF-18-2	BORI	NG NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE I	IA .
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/21/9	93	COMPLTD: 2/22/9	3
METHOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 90-105	FT PROTI	ECTION LEVEL: D	
TOC ELEV.: 184.84 FT.	MONITOR INST.: OVA	TOT DPTH: 107FT.	DPTH	TO ₹ 96.02 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE:	18 - Fire Training	
SANDE TO SANDE STANDER OF THE ADSPACE (Ppm)	SOIL/ROCK DESCRIP' AND COMMENTS Continued from P	면	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
CL	AY (6") – gray, pink mottling. S Illowish orange, fine to coarse, po	AND (14") -	CL/SP		
45.— 0 SA	ND – white, fine to coarse, poor y.	ly graded, loose,	SP	12,18,10,26	2° 4° 2° 2° 2° 2° 2° 4° 4°
	ND – white, very fine, trace coa aded, loose, dry.	rse, poorly	SP	11,17,20,22	
	AND – white, fine, trace coarse, pose, dry.	poorly graded,	SP	24,20,32,44	
0 SA	ND - SAA, trace very fine to fin	e, black chips.	SP	16,26,31,36	
0 SA	AND - SAA, trace medium.		SP	16,22,31,34	
70— ———————————————————————————————————	AND - SAA.		SP	14,20,25,26	
75 7 22/24	AND - very fine to fine, poorly gr	raded, loose, dry.	SP	17,25,35,37	
30	PAGE 2 of 1		SP	10,15,15,18 TAL SERVICES, 1	

TLE: NAVAL AIR STATION WHITING	FIELD LOG of	WELL: WHF-18-2	BOR	ING NO.	
IENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
INTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 2/21/9	€3	COMPLTD: 2/22/	93
THOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 90-105	FT PROT	ECTION LEVEL: D	
OC ELEV.: 164.84 FT.	MONITOR INST.: OVA	TOT DPTH: 107FT.	DPTH	TO ¥ 96.02 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE	18 - Fire Training	
S AND TE S AND THE SAND SPACE (Ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PA	10N 00IC GE 2	SYMBOL SOIL CLASS	BLOWS/8-IN	WELL DATA
- I8/24 SAI gra	ND (12") — yellowish orange, fine ided, moderately dense, slightly in TY/CLAYEY SAND (6") — bands yey sand, fine, yellowish orange, ihtly moist.	noist. of silty sand and	SP		
1 1 1 1	ND – white to yellowish orange, p coarse, well graded, some silt, sli	ghtly moist.	SW	11,12,14,18	
0 SA	ND – white, purple top 2", fine to	trace coarse.	SP	18,30,32,20	
0 SA	ND — white, fine, poorly graded, :	saturated.	SP	11,14,14,17	
	ND – white to light purple, fine to arse poorly graded, moderately o		SP	10,3,15,19	
5— - - - -					
<u></u>					
5—					
0	PAGE 3 of 18			TAL SERVICES.	

TITLE: NAVAL	WIN STATIO	, nniii		LOG of	WELL: WHF-18-3		BOR	ING NO.		
CLIENT: SOUTH	HNAVFACENG	СОМ					PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR:	Groundwater	Protect	ion Inc.		DATE STARTED: 6	3/27/93	COMPLTD: 6/27/93			
METHOD: MUD	ROTARY		CASE SIZE: 2 in.		SCREEN INT.: 95	-110 FT	PROT	ECTION LEVEL: D		
TOC ELEV.: 176	3.21 FT.		MONITOR INST.: OVA		TOT DPTH: 112FT.		DPTH	TO ₹ 104.58 FT.		
LOGGED BY: A	. Cohen		WELL DEVELOPMENT	DATE:	·		SITE:	18 - Fire Training		
LABORATO	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA	
5—	1.0/2.	0	SAND - pale orange-brow fine to medium, poorly sor		ge-brown, very		SP	2,2,3,2		
10—	2.0/2.	0	SAND - orange brown, fin clay lense, slightly plastic	_	ded, 2" sandy		SP	4,4,8,7		
15—	1.5/2.	0	SAND - white, very fine, we phosphatic grains scatter		d, very fine black		SP	8,14,12,7		
20—	1.5/2.	0	SAND - SAA, multiple stria orange-bronw, tan, & ver				SP	7.8.15.15		
25—	1.8/2.	0	SAND - very pale purple medium, well graded, mott				SP	9,14,12,16		
30—	1.7/2.	0	SAND - SAA, multiple stria orange-brown, very pale				SP	19,16,23,24		
35—	1.5/2.	0	SAND - fine to medium, w orange-brown, white, pale very pale orange, & very	e moderat	e red, light tan,		SP	16,19,21,23		
40—					•		\ SP /	8,9,16,14		

	AIR STATION WHI		LOG of WELL: WHF-18-	3		NG NO.	
	INAVFACENGCOM			- 0/07/00	PROJ	CT NO: RI PHASE	
	Groundwater Prote		DATE STARTE			COMPLTD: 6/27/	93
THOD: MUD F	ROTARY	CASE SIZE: 2 in.	SCREEN INT.:				
C ELEV: 176		MONITOR INST.: OVA		т.		TO \$ 104.58 FT.	
IGGED BY: A	. Cohen	WELL DEVELOPMENT	DATE:			18 - Fire Training	
LABORATO SAMPLE I	P Z SAMPLE RECOVERY HEADSPACE	AND C	DESCRIPTION OMMENTS from PAGE 1	LI THOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.8/2.0	SAND - white, fine, poorly			SP		
5—	1.8/2.0	SAND - SAA, fine to medi striations.	um, trace coarse,		SP	12,12,16,15	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
)	1.8/2.0 N/	SAND - dark moderate re fine, trace clay & silt, moi		to	SP	9,8,8,11	4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2
5—	2.0/2.0	CLAYEY SAND - dark moderated, moist. CLAY - particle, moist. CLAY - particle, played and continuing, played sand - tan to white, very	ale gray, slight dark astic, trace sand. SILTY		SC	11,9,16,18	"
)— - - -	1.0/2.0	SAND - white, very fine t	o fine, well graded, moist.	767457 777777	SP	12,14,21,23	
5	1.5/2.0	SAND - light tan to white graded.	, very fine to fine, well		SP	16,25,36,50	
	2.0/2.0	SAND - white, fine to med striations, dense.	dium, trace coarse,		SP	28,36,47,45	
5—	2.0/2.0	SAND - white, very fine t stirations.	to fine, well graded,		SP	18,30,28,30	
					\ SP /	14,18,20,21	

FITLE: NAVAL AIR STATION WHITING	G FIELD	LOG of	WELL: WHF-18-3			NG NO.	
CLIENT: SOUTHNAVFACENGCOM			r		PROJ	ECT NO: RI PHASE	
CONTRACTOR: Groundwater Protection	on Inc.		DATE STARTED: 6	3/27/93	,	COMPLTD: 6/27/	93
METHOD: MUD ROTARY	CASE SIZE: 2 in.	·	SCREEN INT.: 95	-110 FT	PROTI	ECTION LEVEL: 0	
TOC ELEV.: 176.21 FT.	MONITOR INST.: OVA		TOT DPTH: 112FT.		DPTH	TO ¥ 104.58 FT.	
OGGED BY: A. Cohen	WELL DEVELOPMENT	DATE:			SITE:	18 - Fire Training	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
	SAND – white to olive green graded, moist.				SP		
	SAND – very light tan to o noist. graded, some silt, s				SP	12,13,16,19	
0 5	SAND – fine to medium, st	riations, m	oist.		SP	36,39,41,52	
0 5	SAND – fine to medium, we	ell graded	, striations, moist.		SP	WOR,25	
	SAND – fine to medium, we saturated.	ell graded	, striations,		SP	25,35,29,40	
	SAND – pale yellow-orang graded, saturated.	ge, fine to	o medium, well		SP	22,25,31,35	
110— - - 2.0/2.0	SAND - light tan, fine to	medium, sa	aturated.		SP	3,6,12,25	
115—							
120	DACE	E 3 of 18	RMW3 ADD	ENVIDO	NMEN	 TAL SERVICES.	TNC

	Naval Air Station Whiting Field LOG of WELL: WHF-29-1				BOR	ING NO.		
LIENT: SOUTHNAVFA	CENGCOM					PRO	JECT NO: RI PHASE	IIA
ONTRACTOR: Grounds	vater Protec	tion Inc.	. [DATE STARTED: 6/0	08/93		COMPLTD: 6/08/	93
ETHOD: Hollow Stem	Auger	CASE SIZE: 2"	!	SCREEN INT.: 125-	140 FT.	PROT	ECTION LEVEL: D	
OC ELEV.: 193.95 FT.		MONITOR INST.: OVA		TOT DPTH: 141FT.		DPTH	TO ♀ 127.52 FT.	
OGGED BY: D. Wong		WELL DEVELOPMENT	DATE:			SITE	29 - HOBBY SHOP	
L LABORATORY WAS SAMPLE ID. WY	RECCOVERY RECCOVERY (ppm) CLITHOLOGIC SYNROL		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA		
5		SEE WHF-29-2 FOR ADDIT DESCRIPTIONS.	IONAL LIT	THOLOGICAL				

ITLE: Naval Air Station Whi	ting Field		LOG of WELL: WH	IF-29-1	BORI	NG NO.	
LIENT: SOUTHNAVFACENG	СОМ				PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater	Protection	Inc.	DATE S	TARTED: 6/08/93		COMPLTD: 6/08	/93
ETHOD: Hollow Stem Auger		CASE SIZE: 2"	SCREEN	INT.: 125-140 FT.	PROTE	ECTION LEVEL: D	
OC ELEV.: 193.95 FT.		MONITOR INST.: OVA	TOT DP	TH: 141FT.	DPTH	TO ¥ 127.52 FT.	
OGGED BY: D. Wong		WELL DEVELOPMENT D	DATE:		SITE:	29 - HOBBY SHOP	,
S. AMPLE ID. SAMPLE TO SAM	HEADSPACE (ppm)	SOIL/ROCK D AND CO Continued f	MMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		Continued f	TOIL PAGE !		S		

LE: Naval Air Station Whiting Field LOG of WELL: WHF-29-1 BORING NO.			
IENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA
ONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 6/08/93	COMPLTD: 6/08/93
ETHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 125-140 FT.	PROTECTION LEVEL: D
OC ELEV.: 193.95 FT.	MONITOR INST.: OVA	OVA TOT DPTH: 141FT. DPTH TO	
DGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 29 - HOBBY SHOP
SAMPE SAMPE THE COVERY (PDM)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE OF THE PAGE OF THE PA	THO	SOIL CLASS RI -9/SMOTH
- 2.0/2.0 oran	IDY CLAY – dark brown to red to nge, fine, very firm, low plasticity tom 5 in. SAND – off-white, fine	y, LITHO CHANGE	SC 29,30,refusi
2.0/2.0 som	ND – off-white, trace fine to me ne silt, saturated	edium to coarse,	SW 8,15,36,38
2.0/2.0 SAI	ne As Above. NDY CLAY – gray to purple, mot dium to coarse, low plasticity, mo		SW/CL 17,21,32,42

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-2	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE II	ΙA
CONTRACTOR: Groundwater Protection	inc.	DATE STARTED: 6/12/93	COMPLTD: 6/13/93	}
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 122-137 FT.	PROTECTION LEVEL: B,D	
TOC ELEV.: 191.87 FT.	MONITOR INST.: OVA	TOT DPTH: 139FT.	DPTH TO ¥ 128.54 FT.	
LOGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 29	
DEPTH FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS	2 SYMBOL	SOIL CLASS NI-9/SMOTB	WELL DATA
5—				21 21 21 21 21 21 21 21 21 21
	「 (1') – brown, stiff, fill material, gray, very stiff, low plasticity, c		MH/CL 4,10,14,16	Challetter
	Y (5") - Same As Above, SAND to medium, some silt, loose, dry.	(4") ~ brown,	CL/SP 2,8,16,20	
25—				
	D - off-white fine, loose, staine dry.	d by light orange	SP 2,8,16,20	
35—				

TLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-2	BORING NO.	
ENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	IIA
NTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/12/93	COMPLTD: 6/13/9	93
THOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 122-137 FT.	PROTECTION LEVEL: B,D	
C ELEV.: 191.87 FT.	MONITOR INST.: OVA	TOT DPTH: 139FT.	DPTH TO \$ 128.54 FT.	
GGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 29	
SANDERSONERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI SYM	SOIL CLASS NI-9/SMOTB	WELL DATA
	TY CLAY (6") – light gray to lig t, moist. SAND (1') – light gray (ce silt, dry.		CL/SP	
- 0 SIL	.TY SAND – off-white to light ta	an, firm, dry.	SM 18,19,31,25	
1 SAI	ND – light gray, fine some silt, si	tiff, moist.	8,9,17,21	
	ND – SAA, trace coarse, sub-ro ice pink silt.	unded to rounded,	SP 10,14,14,21	
5— - - - - - - - - - - - - -			21,31,32,35	"

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-2	BORING NO.	
LIENT: SOUTHNAVFACENGCOM	1		PROJECT NO: R	RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/12/93	COMPL	TD: 6/13/93
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 122-137 FT.	PROTECTION LE	VEL: B,D
OC ELEV.: 191.87 FT.	MONITOR INST.: OVA	TOT DPTH: 139FT.	DPTH TO ♀ 126.	54 FT.
OGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 29	
DEFLIH FIT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTE AND COMMENTS Continued from PAG	THO	SOIL CLASS	WELL DATA
	ND - off-white to light pink, fine,		SP	
	ND - off-white to light pink, fine, gh plasticity, soft, some silt, dry.	, red clay lense,	SP 8,14,	18,25
	NND (1') – light pink to pink, fine, s NND (7'') – yellow, trace silt, loose		SP 15,26,	27,27
- 1.4/2.0 mg	AND (5") - orange to red, fine, so bist, SAND (1") - off-white, fine, t bist.		SP 0,0,re	efusal
15 54	AND — off-white, fine, stiff.		SP WOR,4	40,ref.
20 5.7	AND - SAA.		SP 30,3	7,ref.
10— - - - - - - - - - - - - - - - - - - -	AND - SAA, with light pink tinge.		SP WOR,3	30,ref.
7 S	AND — SAA, light pink to off-white	e, trace silt.	SP ref	usal
20 3			Sw /	I/A

IILE. NOVO.	Air Station Wh	iting Field	o	LOG of	WELL: WHF-29-2		BORII	NG NO.	
.IENT: SOUT	HNAVFACENG	COM					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR:	Groundwater	Protection	on Inc.		DATE STARTED: 6	/12/93		COMPLTD: 6/13/	93
ETHOD: Hollo	w Stem Auger	•	CASE SIZE: 2"		SCREEN INT.: 122	-137 FT.	PROTE	CTION LEVEL: B.D	
OC ELEV.: 19	1.87 FT.		MONITOR INST.: OVA		TOT DPTH: 139FT.		DPTH	TO \$ 126.54 FT.	
OĞGED BY: 1	D. Wong		WELL DEVELOPMENT	DATE:			SITE:	29	
LABORAT SAMPLE	· = -	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.2/2.	7 1	SAND (7") – purple to red graded. SAND (7") – off-	l, fine to	coarse, well	• • •	SW		
5—	1.0/2.		SAND – off-white, fine to trace silt, sub-angular.	coarse, i	well graded, dense,	. • .	SW	N/A	
0	2.0/2		SAND – light tan, fine to r	nedium, fii	rm, saturated.		SP	N/A	
5—	2.0/2		SAND – SAA, 5" silty clay plastic.	lense, mo	ottled purple, stiff,		CL	N/A	
0-									
15—- -									
50									
55—			,	·					
30									

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-3	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI P	HASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/11/93	COMPLTD:	6/11/93
ETHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 124-139 FT.	PROTECTION LEVE	L: B,D
OC ELEV.: 194.39 FT.	MONITOR INST.: OVA	TOT DPTH: 140FT.	DPTH TO ₹ 128.73	FT.
OGGED BY: D. Wong	WELL DEVELOPMENT DATE: N/	A	SITE:	
SAMPLE SAMPLE COVERY HEADSPACE (PDm)	SOIL/ROCK DESCRIPT AND COMMENTS	SYMBOL	SOIL CLASS	Z WELL DATA
	T – yellow orange, moderately o d (<5%), dry,	dense, some fine	ML N/A	
10—				
	.T (6") – Same As Above, Botto AY – light gray to dark off-white	16 6 61	ML/CL N/A	
20—				
- I.1/2.0 dry brit sitt ligh	NDY CLAY (2") — Same As Above r. SILTY SAND (2") — dark redo ttle, dry. SAND (2") — orange to . SAND (2") — SAA, light gray. at gray, bannded pink. SAND (3	dish-brown, stiff, o red, fine, some SAND (2") - SAA,	SC/SP N/A	
30— - - -	low.			
350			SC / N/A	

, and the second	200 01	WELL: WHF-29-3	BORING NO.	
IENT: SOUTHNAVFACENGCOM	<u> </u>		PROJECT NO: RI	
ONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 6/11/93	COMPLTD	
ETHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 124-139 F		
OC ELEV.: 194.39 FT.	MONITOR INST.: OVA	TOT DPTH: 140FT.	DPTH TO ¥ 128.73	FT.
DGGED BY: D. Wong	WELL DEVELOPMENT DATE: N/A		SITE:	
SAMPLE SAMPLE COVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	OH1 XXX	SOIL CLASS Browne	Z WELL DATA
soft	TY CLAY (1') – maroon, mottled li . SANDY CLAY (1') – light gray, sticity, stiff.		SC	
	.YEY SAND (6") – light gray, fine sticity. SAND (1') – white to pink		- SC N/A	
	ND – light gray to off-white, bar e, some silt, dense, dry	anded light brown,	SP N/A	
- 1.6/2.0 stift to silt	AYEY SAND (6") – light gray, mo ff, moderate plasticity. SAND (6 brown, lense of coarse sand, sut . SAND (6") – light gray to off- ange-brown, fine, trace silt and o	S") – light orange o-angular, some -white to light	SP/SC N/A	

TTLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-3	BORIN	NG NO.	
LIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/11/93		COMPLTD: 6/11/9	93
(ETHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 124-139 F	T. PROTE	CTION LEVEL: B,D	
TOC ELEV.: 194.39 FT.	MONITOR INST.: OVA	TOT DPTH: 140FT.	DPTH '	TO ¥ 128.73 FT.	
.OGGED BY: D. Wong	WELL DEVELOPMENT DATE: N/	Α .	SITE:		
DEPTH TI. FIT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO SYM	SOIL CLASS	BLOWS/6-IN	WELL DATA
75— 0 SIL	TY SAND (5") – pink, fine, dry. -white, bannded pink, fine, some	SAND (1.1') -	SP/SM	N/A	
1.6/2.0 ligh	ND (8") – SAA, fine, brownish ye It gray, soft to moderately stiff, AY (7") – maroon, mottled light g derate plasticity, some sand, tra	plastic. SANDY gray, stiff,	\$P/CH/CL	N/A	
90— - - 2.0/2.0 sil	.TY SAND - light gray, bandded st.	pink, fine, stiff,	SM	N/A	
	ND – bannded marron, orang-ye nt yellow, fine, some silt, dry	ellow, off-white and	SP	N/A	
1.3/2.0 ligh	ND (8") – bannded brownish yel nt pink, fine, some silt, stiff. SAI F-white, SAA.		SP	N/A	20 20 20 20 20 20
105			SP)	N/A	

Sample ID Samp			WELL: WHF-29-3	BORING NO.	
CASE SIZE: 2" SCREEN INT.: 124-139 FT. PROTECTION LEVEL: 8.D.					
MONITOR INST:: OVA TOT DETH: 140FT. DPTH TO \$128.73 FT. DOGGED BY: D. Mong MELL DEVELOPMENT DATE: N/A SITE: SOIL/ROCK DESCRIPTION AND COMMENTS CONTINUED (from PAGE 3 Ls/2.0 Ls/2.0 SAND (4") - yellow to brown, fine, some silt. SAND (Ls/2.0 Ls/2.0 SAND - off-white, fine, trace silt. SP N/A SP N/A 100 Ls/2.0 100 SAND - brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. 115 DPTH TO \$128.73 FT. DPTH TO \$128.73 FT. SP BLOWS/6-IN SP BLOWS/6-IN SP N/A SP N/A N/A 100 Ls/2.0 100 SAND - off-white, fine, trace silt. SP N/A N/A O.8/2.0 SAND - brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. O.8/2.0 30 7 SAND - SAA, brownish yellow to off-white, dry. O.8/2.0 7 SAND (1") - off-white fine, saturated. CLAYEY SAND (1) - tan to brownish yellow, motited maroon, some silt, stiff, moderate plasticity.		· · · · · · · · · · · · · · · · · · ·			
MELL DEVELOPMENT DATE: N/A SITE: SOIL/ROCK DESCRIPTION AND CONNENTS CONTINUED (from PAGE 3) I.5/2.0 SAND (4") - off-white to light pink, fine, trace silt. SP N/A I.5/2.0 II.5/2.0 II.5/2	ETHOD: Hollow Stem Auger	CASE SIZE: 2"			
SAND - off-white, fine, trace silt. SAND - off-white, fine, trace silt. SAND - brownish yellow to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	OC ELEV.: 194.39 FT.	MONITOR INST.: OVA	TOT DPTH: 140FT.		
SAND (4") – yellow to brown, fine, some sitt. SAND (LT) – off-white to light pink, fine, trace silt, stiff, dry. 110 SAND – off-white, fine, trace silt. SAND – off-white, fine, trace silt. SP N/A 115— 120 SAND – brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. 120 SAND – SAA, brownish yellow to off-white, dry. SAND – SAA, brownish yellow to off-white, dry. SAND – SAA, brownish yellow to off-white, dry. N/A 20— 12 SAND – SAA, brownish yellow to off-white, dry. SW N/A 130— 14 SAND – SAA, brownish yellow to off-white, dry. SW N/A 15 SAND (1") – off-white fine, saturated. CLAYEY SAND (1") – tan to brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	DGGED BY: D. Wong	WELL DEVELOPMENT DATE: N/A		SITE:	
SAND (4") - yellow to brown, fine, some sit. SAND SP (LIT) - off-white to light pink, fine, trace silt, stiff, dry. 110 SAND - off-white, fine, trace silt. SP N/A 115 SAND - off-white, fine, trace silt. SP N/A 15-20 SAND - brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. 120 SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	RECOVERY HADSPACE (Ppm)	AND COMMENTS	E SYMBOL	SOIL CLASS BROAS-6-IN	WELL DATA
1.5/2.0 Same As Above. SP N/A 1.5/2.0 SAND - brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow to off-white, dry. SAND - SAA, brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	1.5/2.0 (1.1)) - off-white to light pink, fine, t	1 ' ' ' ' ' '	SP	
20 1.5/2.0 120 SAND - brownish yellow to pink to off-white, fine to coarse, well graded, trace silt, sub-rounded, dry. N/A		ND – off-white, fine, trace silt.		SP N/A	
25— 12 SAND - SAA, brownish yellow to off-white, dry. N/A SAND (1') - off-white fine, saturated. CLAYEY SAND (1') - tan to brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	30	ne As Above.		SP N/A	
O.8/2.0 7 SAND (1') - off-white fine, saturated. CLAYEY SAND (1') - tan to brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	9/."			SW N/A	
2.0/2.0 (1') - tan to brownish yellow, mottled maroon, some silt, stiff, moderate plasticity.	J.	ND – SAA, brownish yellow to off	-white, dry.	SW N/A	
7 STITY SAND TO USE SAND TO US	2.0/2.0	- tan to brownish yellow, mottle	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SP/SC N/A	
SILTY SAND - yellow to light brown, mottled maroon, fine, stiff, brittle, saturated.			n, mottled maroon,	SM N/A	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-4		BORING	NO.
CLIENT: SOUTHNAVFACENGCOM				PROJECT	NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/10/9	93	C	COMPLTD: 6/10/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 124-139	FT (PROTECT	ION LEVEL: B, D
TOC ELEV.: 196.21 FT.	MONITOR INST.: FID	TOT DPTH: 142FT.	1	DPTH TO	¥ 129.96 FT.
LOGGED BY: D. Wong	WELL DEVELOPMENT DATE:		!	SITE: 29	
DEPTH TI. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	NOI NOI C	SYMBOL	SOIL CLASS	WELL DATA
5— 10— 0 S	AYEY SAND — light brown to light ime silt, dry. ILTY SAND — brown, mottled purpl ime clay, low plasticity, firm, moist ark purple, fine grained, dark tan i it.	e and light gray,		SM	5,11,14,13
	AND – interbedd puple, light browi ray, fine, some silt, light yellow-or			SP	3,6,18,23
	AND – yellow to orange to off-wheedium, loose.	nite, fine to		SP	10,17,21,13
40-				SP	4,18,45,50

TITLE: Naval Air Station	Whiting Field		1.00 of	WELL: WHF-29-4		BODI	NG NO.	
OLICHT, CONTUNAVEAC	ENCCOM		100 01	NCLL. WAR -29-4			ECT NO: RI PHASE	
CLIENT: SOUTHNAVFAC		n Inc		DATE STARTED: 6	3/10/93	PRUJE	COMPLTE: 6/10/	
METHOD: MUD ROTARY	iter Protectio	CASE SIZE: 2"		SCREEN INT.: 124		PROTE	CTION LEVEL: B.	
		MONITOR INST.: FID		TOT DPTH: 142FT.			TO \$ 129.96 FT.	
TOC ELEV.: 196.21 FT. LOGGED BY: D. Wong		WELL DEVELOPMENT		101 01111.142111		SITE:		
L LABORATORY WE SAMPLE ID. WE SAMPLE ID.	HEADSPACE (ppm)	SOIL/ROCK AND C Continued ILTY CLAY - top 6 IN., r	омментѕ from <u>PA</u>	GE 1	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	
45—	B/2.0 a	nd light gray, soft, plasti 1 FT., pale light gray to lit, dry.	ic. LITHO	CHANGE - SAND		5		
	0 S	AND - Same As Above.				SP	5,14,25,25	
- -	5/2.0	AND - off-white, fine, b N. CLAYEY SAND - soft	_	ht pink, Bottom 3		SP/SC	6,14,16,30	
	0/2.0 m	AND - off-white to pale noderately dense, dry.	e light olive	gray, fine,		SP	8,20,28,35	
1.	1 1	SAND – off-white and pu range-brown, some silt ,		fine, bannded		SP	21,32,19,12	
70	5/2.0 n	CLAYEY SAND — Top 6 IN nedium, moderate plastici SAND — fine.				SC	5,17,25,30	
75—		SAND – off-white to light dense, dry.	t pink, fine	, moderately		SP	11,13,30,30	

ITLE: Naval Air Station Whiting Field	LOG	of WELL: WHF-29-4		BORIN		
LIENT: SOUTHNAVFACENGCOM			- 4.5	PROJE	CT NO: RI PHASE	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED:	6/10/93		COMPLTD: 6/10/9	
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 13	24-139 FT	PROTEC	CTION LEVEL: B, C)
FOC ELEV.: 196.21 FT.	MONITOR INST.: FID	TOT DPTH: 142F	т.	DPTH T	O ¥ 129.96 FT.	
OGGED BY: D. Wong	WELL DEVELOPMENT DATE:			SITE: 2	9	
SAMPLE SAMPLE COVERY (PPM)	SOIL/ROCK DESCRI AND COMMENT Continued from 1	s	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
1 1 1 1 1 1 1 1	ND – off-white to light pink, fi derately dense, dry.		76747	SP		
	ND – off-white to pink, trace artz, rounded.	cobbles, white		SP	19,40,refusi	
	.ND – off-white to pink, fine, b ange-brown, little silt, stiff, dr			SP	25,43,refusl	
0.8	ND – light yellow, fine, trace s	silt, dry.	X : X : X : X	SP	17,refusal	
0.2/2.0 0.8 Sa	ame as above.			SP	refusal	
	NND – very light pale olive gra unnded brown, some silt, moist.	y to off-white, fine,		SP	28,45,refusl	
0.8 S	AND - off-white, fine, moderat	ely dense, moist.		SP	42,refusal	
0.8 S	ame As Above.			SP	15,41,refusl	
20—		•		SP	39,46,refusl	

TLE: Naval Air Station Whiting Field		OG of WELL: WHF-2	9-4	BORING N	0.	
IENT: SOUTHNAVFACENGCOM			:		NO: RI PHASE	
ONTRACTOR: Groundwater Protection I	nc.	DATE START	ED: 6/10/93	CC	MPLTD: 6/10/9	3
ETHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT	: 124-139 FT	PROTECTIO	ON LEVEL: B. C)
OC ELEV.: 196.21 FT.	MONITOR INST.: FID	TOT DPTH: 14	42FT.	DPTH TO \$	129.96 FT.	
OGGED BY: D. Wong	WELL DEVELOPMENT DA	TE:		SITE: 29		
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DE AND COMM Continued fro	ENTS	LITHOLOGIC SYMBOL	SOIL CLASS	LOWS/6-IN	WELL DATA
1.2/2.0 Sam	e As Above. D - orange-pink to off- e silt.			SP 1	7,36,34,30	
0— 8 SAN	iD – off-white, fine satur	ated.		SP	43,17,refusi	
2.0/2.0 qua	ID – light pale beige, fine rtz, sub–rounded, Bottom tled purple, brown, yellow ticity.	0.5 FT SAND CL	AY - • • •	SW/CL	5,16,32,50	
0-						
15						
50—						
55—						
60-		•				V

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-29-5	BOR	ING NO.	
CLIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE I	A
CONTRACTOR: Groundwater Protection I	nc.	DATE STARTED: 6/09/	93	COMPLTD: 6/09/9	3
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 117-132	FT. PROT	ECTION LEVEL: D	
TOC ELEV.: 193.8 FT.	MONITOR INST.: OVA	TOT DPTH: 134FT.	DPTH	I TO ¥ 124.1 FT.	4
LOGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE	: 29 - HOBBY SHOP	
DEPTH TI. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	NOI	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
5— CLA	YEY SAND – tan to brown, fine,	fill material, dry.	SC SC		
	YEY SAND – purple to light gra plasticity, dry.	y, fine sand, stiff,	sc sc	5,8,14,19	
15 - No F	Recovery.			3,7,10,16	
20 0.5/2.0 0 SAN	ID – purple red to pale red, fine	e, trace silt, dry.	SP	2,9,9,15	
25	ID – off-white, fine, trace silt, l	oose, dry.	SP	9,12,17,17	
	ne As Above, trace medium sand htly dense.	i, sub rounded,	SP	6,6,13,18	
	ID – off-white to light pale red liumd, trace silt, loose, dry.	, very fine, some	SP	9,15,18,19	
	ND – off-white to light pale gra htly dense, slightly moist.	y, very fine,	SP	7,10,15,18	
45—	PAGE 1 of 2		SP	15,20,28,40 NTAL SERVICES,	

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TITLE: Naval Air	r Station Whiting F	ield	LOG of W	ELL: WHF-29-5		BORI	NG NO.	
LIENT: SOUTH	NAVFACENGCOM		· ·			PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: G	Groundwater Protec	ction Inc.	D.	ATE STARTED: 6.	/09/93		COMPLTD: 6/09/	93
ETHOD: Hollow	Stem Auger	CASE SIZE: 2"	s	CREEN INT.: 117-	-132 FT.	PROTE	CTION LEVEL: D	
OC ELEV.: 193.	8 FT.	MONITOR INST.: OVA	T	OT DPTH: 134FT.		DPTH	TO ¥ 124.1 FT.	
OGGED BY: D.	Wong	WELL DEVELOPMENT	DATE:			SITE:	29 - HOBBY SHOP	
LABORATOR SAMPLE IC	SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C Continued	DESCRIPTION		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	0.8/2.0	SAND - off-white, fine, bitrace silt.				SP		
50—	1.0/2.0	Same As Above, banded la reddish-orange.	ayers more			SP	19,40,50,ref	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$
5	0.8/2.0	Same As Above, reddish o	orange.			SP	8,30,refusal	
0-	1.0/2.0	SAND — light pale reddish gray clay, low to medium p silt.				SP	8,18,17,19	
5	1.2/2.0	Same As Above, some cla	y, moist.			SP	10,11,10,9	
0	1.0/2.0	SAND - off-white, fine, lo	oose, moist.			SP	17,23,37,30	
5—	0.8/2.0	Same As Above, some coa	arse.			SP	12,25,32,37	
0	1.0/2.0	SAND - off-white to light	t pale orange	e, dense, dry.		SP	19,28,32,35	
55— -	2.0/2.0	- light pale olive gray , f stiff LITHO CHANGE -	at, very plas	tic, medium		SP	6,21,39,35	121212121
90-		As Above.				SP	10,16,36,43	

TITLE: Naval Air Station Whiting Field	LOG of WELL: WHF-29	-5	BORING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE I	IIA	
CONTRACTOR: Groundwater Protection I	nc. DATE STARTE	D: 6/09/93	COMPLTD: 6/09/9	93	
ETHOD: Hollow Stem Auger	CASE SIZE: 2" SCREEN INT.:	117-132 FT.	PROTECTION LEVEL: D		
OC ELEV.: 193.8 FT.	MONITOR INST.: OVA TOT DPTH: 13-	4FT.	DPTH TO ¥ 124.1 FT.		
OGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 29 - HOBBY SHOP	· .	
RECOVERY (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS BROMS/6-IN	WELL DATA	
1.0/2.0 SAN	D – pale orange to off-white, fine. D – off-white, fine, slightly dense, dry.		SP 16,36,31,43	*********	
0.8/2.0	e As Above.		SP 16,40,refusi	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
5— 0.5/2.0 Sam	e As Above.		SP 22,41,38,ref		
0— - - 1.3/2.0 0 Sam	e As Above.		SP 27,44,refusi		
0.8 Sam	e As Above.		SP 22,24,refusi	 	
1.0/2.0 0.4 gra	ID – pale orange-red to off-white, fine to rse, poorly graded, sub-rounded, some clay, lie, wet. ID – light beige to tan, very fine, saturated.	ght •••	SW 15,21,16,30 SP 27,48,refusi		
	ne As Above, bannded light pale red-pink sand ce coarse, sub-rounded, saturated.		SP 11,28,33,42		
	ND – light pink, fine to coarse, trace clay and t gray, subrounded, saturated.	silt,	9,13,35,36		

ITLE: Naval Air Station Whiting Field	LOG of WELL: WHF-30-3		BO	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PRO	DJECT NO: RI PHASE IIA		
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/16/9	3	COMPLTD: 6/16/93		
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 120-135	FT PRO	TECTION LEVEL: D		
OC ELEV.: 179.29 FT.	MONITOR INST.: FID/OVA	TOT OPTH: 142FT.	DPT	Н ТО ⊈ 121.92 FT.		
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SIT	E: 30		
CATTING TO THE SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	2 Z	SYMBOL SOIL CLASS	WELL DATA		
22/24 firm	TY CLAY — red to tan, Grade to , dry.	CLAY - gray,	CL	2,4,6,8		
0- 19/24 coa	ND ~ purple with red banding, fin arse, moderately well graded, mo , subangular.		SP	4,10,15,17		
	ND — white, fine, to medium, poor nse, dry, subrounded to subangul		SP	5,11,15,18		
	me as above, light pink to orange nds,	e, fine, thin red	SP	12,9,6,12		

ITLE: Naval Air St	ation Whit	ing Field		LOG of	f WELL: WHF-30-3		BORI	NG NO.	
LIENT: SOUTHNAV	FACENGO	COM			· · · · · · · · · · · · · · · · · · ·		PROJECT NO: RI PHASE IIA		IIA
ONTRACTOR: Grou	ndwater f	rotectio	n Inc.	•	DATE STARTED:	6/16/93		COMPLTD: 6/16/	93
ETHOD: HSA			CASE SIZE: 2"		SCREEN INT.: 12	0-135 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 179.29	EV.: 179.29 FT. MONITOR INST.: FID/OVA TOT DPTH: 142FT.			DPTH	TO 및 121.92 FT.				
OGGED BY: N. Ro	ka .		WELL DEVELOPMENT	DATE:			SITE:	30	
LABORATORY TO SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	16/24						SP		
0	24/24		ame as above, very light ilt.	pinkish g	ray, fine, some		SP	WOR,12.18	
0	23/24		AND – pink with orange oorly graded, medium de		e to medium,		SP	16,19,20,24	
55—	20/24		ame as above, no pink.				SP	7,12,14,19	
75—	20/24	BKG q	same as above, fine to m	edium tra			SP	17,21,25,29	, _" =" =" =" =" =" =" =" =" =" =" =" =" ="

TTLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-30-3	BORING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA	t .	
CONTRACTOR: Groundwater Protection	on Inc.	DATE STARTED: 6/16/93	COMPLTD: 6/16/93		
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 120-135 FT	PROTECTION LEVEL: D		
OC ELEV.: 179.29 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 142FT.	OPTH TO ¥ 121.92 FT.		
OGGED BY: N. Roka	D BY: N. Roka WELL DEVELOPMENT DATE:		SITE: 30		
DEPTH FT. ST. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI	SOIL CLASS BLOM2/6-IN	WELL DATA	
20/24 	Same as above, SAND – pink, some noderately well graded, dry, subang SAND – whitish tan with thin orange nedium, poorly graded, dry.	fine to medium, gular.	SP WOR		
18/18	SAND – light pinkish beige, fine to r coarse, very dense, subrounded to	, ,	SP 25,37,50,-		
9/9 BKG	Same as above, whitish tan.		SP 50,50,-		
	SAND – white, to light tan, fine to m poorly graded, very dense, dry, sub		SP 50		

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TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-30-3	BORING NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE IIA		
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/16/93	COMPLTD: 6/16/93		
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 120-135 FT	PROTECTION LEVEL: D		
FOC ELEV.: 179.29 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 142FT.	DPTH TO ♀ 121.92 FT.		
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:	·	SITE: 30		
DEPTH DEPTH T. FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PA(THOI SYM	SOIL CLASS BLOM2/6-IN	WELL DATA	
25— 25— 26— 26— 26— 26— 26— 26— 26— 26— 26— 26	AY — red and gray mottled, firm, of AYEY SAND — orange and greeningst, firm. ND — red to yellowish beige, very aded, very dense, saturated. ND — tan to brown, very fine, some aded, soft, saturated. AYEY SAND — red to tan to gray	dry. sh gray, silt, fine, poorly ne silt, poorly . banded, soft, damp, fat.	SP 50 CH WOR	\tag{1}	
45—					
50—					
155					

ITLE: N	Naval Air S	tation	וזוחאאים	ng Fie	ei a	LOG of	WELL: WHF-30-4		BORI	ING NO.	
LIENT:	SOUTHNA	VFAC	ENGC	OM					PROJ	ECT NO: RI PHASE	IIA
CONTRA	CTOR: Grou	ındwa	ater P	rotect	ion Inc.		DATE STARTED: 6	/14/93		COMPLTD: 6/14/	93
METHOD	: HSA				CASE SIZE: 2"		SCREEN INT.: 123	-138 FT	PROT	ECTION LEVEL: D	
TOC ELE	ELEV.: 181.86 FT. MONITOR INST.: FID/OVA TOT OPTH: 138FT.					DPTH	TO ♀ 124.76 FT.				
LOGGED	BY: N. Ro	ka			WELL DEVELOPMENT	DATE:			SITE:	; 30	
OEPTH FT. SY	BORATORY &	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5—											-
10-		2	22/24	BKG	CLAYEY SILT - red to ye dense, dry, Grade to sand				SM	4,7,9,15	~ " ~ " ~ " ~ "
15			12/24	BKG	SAND - same as above, p	oorly gra	ded.		SM	6,7,7,9	~" ~" ~" ~" ~" ~"
20-		7	19/24	BKG	SAND - red, fine, grade t medium dense, dry, suban		ne to medium,		SP	4,9,12,12	
25			15/24	BKG	Same as above.				SP	6,11,13,15	
30			18/24	BKG	Same as above.				SP	5,11,16,16	
35			19/24	BKG	Same as above.				SP	15,26,27,29	
40				BKG			•		\ sc /	7,8,9,11	2 2 2 2 2

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-30-4	<u> </u>	ING NO.	
LIENT: SOUTHNAVFACENGCOM		I		JECT NO: RI PHASE I	
ONTRACTOR: Groundwater Protection		DATE STARTED: 6/14	· · · · · · · · · · · · · · · · · · ·	COMPLTD: 6/14/9	3
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 123-13		ECTION LEVEL: D	
OC ELEV.: 181.86 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 138FT.		I TO \$ 124.76 FT.	
OGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE	: 30	5.
RECOVERY (PDM)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA		SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
- 23/24 CL	AYEY SAND – pink to light tan, fi y.	ine, medium dense,	sc		
]					
	LTY SAND - pink to white with or nse, dry.	ange, fine, medium	SM	7,8,11,11	
	ND – white, fine, poorly graded, brounded to subangular.	loose, dry,	SP	WOR	
55— - - - - - - - - - - - - - - - - - -	me as above.		SP	10,11,13,11	
23/24 BKG Sa	nme as above, some pink to peacl	h, medium dense.	SP	13,16,16,20	
85— - - - - - - - - - -	me as above, pink to orange, me	dium.	SP	10,22,26,27	2" 2" 2" 2" 2" 2"
70— - - - - - - - - - - - - - - - - - - -	ame as above - blowdown.		SP	WOR	
75————————————————————————————————————	ame as above.		SP	28,33,38,41	
BKG			\ SP	18,29,34,42	

ITLE: Naval Air Station Whiting Field	L	OG of WELL: WHF-30-4		BORI	NG NO.		
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6	/14/93	COMPLTD: 6/14/93			
IETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 123	-138 FT	PROTE	ECTION LEVEL: D		
OC ELEY.: 181.86 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 138FT.		DPTH	TO ¥ 124.76 FT.		
OGGED BY: N. Roka	WELL DEVELOPMENT DAT	E:		SITE:	30		
SAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESI AND COMME Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
SA	ND – white, fine to coarse, le orange spots, blackish-g	dense to very dense,		SP		12121	
5—							
						" " " " " " " " " " " " " " " " " " "	
	.ND – white to pale pink, ver aded, very dense, dry.	ry fine to fine, poorly		SP	34,50,-,-		
	ND – white with red banding orly graded, very dense, dr			SP	WOR/36,43	1 21 21 21 21	
23/24 SA	AND – red, fine to coarse, to AND – red with orange band ace coarse, moderately gra ghtly moist, subrounded to s	ing, fine to medium to ded, very dense,		SP	19,20,22,22		
- 19/24 pc	AND — white to pink, fine to porly graded, dense, moist, s bangular.			SP/SM	11,13,26,31		
	AND – orange to tan, fine to ery dense, slightly moist, sub			SP	25,36,50,-	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	
20				\ SP /	23,35,50,-	羅	

	ng Field	LOG of WELL: WHF-30-	4	BORING NO.	
LIENT: SOUTHNAVFACENGCO	DM .			PROJECT NO: RI PHASE IIA	4
ONTRACTOR: Groundwater Pro	otection Inc.	DATE STARTED	: 6/14/93	COMPLTD: 6/14/93	
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.:	123-138 FT P	ROTECTION LEVEL: D	
OC ELEV.: 181.86 FT.	MONITOR INST.: FID	/OVA TOT DPTH: 138F	т. о	PTH TO ¥ 124.76 FT.	
OGGED BY: N. Roka	WELL DEVELOPMENT	DATE:	S	ITE: 30	
SAMPLE ID. SAMPLE	AND C	DESCRIPTION COMMENTS , from PAGE 3	SYMBOL	BLOWS/6-IN	WELL DATA
18/18	Same as above.	coarse, moderately gradec gular.		19,28,50,-	
- 22/24	4.0 SAND - orange to tan, fi	ne to coarse, trace gravel,		/CL 18,25,38,46 8,8,9,10	
35—	SAND - red to tan, medic trace silt, moderately gra saturated.				
45—					
55—					

TLE: Naval Air Station Whiting Field LOG of WELL: WHF-30-5				10.
LIENT: SOUTHNAVFACENGCOM			PROJECT	NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection	Inc.	ATE STARTED: 6/23/93	C	OMPLTD: 6/25/93
METHOD: HSA	CASE SIZE: 2" SO	CREEN INT.: 149-159 FT	PROTECTI	ON LEVEL: D
TOC ELEV.: 182.15 FT.	MONITOR INST.: FID/OVA TO	OT DPTH: 160FT.	ортн то ұ	128.84 FT.
LOGGED BY: A. Cohen	WELL DEVELOPMENT DATE:		SITE: 30	
DEPTH TI.: SAMPLE SAMPLE GPM (PPM)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC	SOIL CLASS	WELL DATA
	ND – moderate reddish brown, fine t ce clay.	to medium,	SP	4,6,8,20
	AYEY SAND – light brown to modera arse, well graded.	ite red, fine to	SC	9,16,22,24
	ND — moderate red, medium to coars ded.	se, well	SP	18,23,25,28
- 2.0/2.0 pla	NDY CLAY (8") – ligh brown to mode stic. SAND (16") – moderate red, m arse, well graded.		sc	8,11,15,16
- 1.7/2.0 me	AYEY SAND (2") — moderate brown, dium. SAND (2") — moderate red, m arse, well graded. SAND (14") — wh lage brown, very fine to fine.	edium to	SP	12,14,18,21
J Eliovation ph	ND (12") – white, very fine to fine, osphatic grains through out. SAND derate red to orange to tan, mottle to be a coarse. PAGE 1 of 30M	(12") -	SP	13,17,20,21

CLIENT: SOUTHNAVFACENGCOM		ELL: WHF-30-5	PROJECT NO: RI PHASE	F IIA
CONTRACTOR: Groundwater Protection 1	Inc.	ATE STARTED: 6/23/93	COMPLTD: 6/25	· · · · · · · · · · · · · · · · · · ·
METHOD: HSA		CREEN INT.: 149-159 FT	PROTECTION LEVEL: D	
TOC ELEV.: 182.15 FT.		OT DPTH: 160FT.	DPTH TO ¥ 128.84 FT.	
LOGGED BY: A. Cohen	WELL DEVELOPMENT DATE:		SITE: 30	
DEPTH T. T. SAMPLE SAMPLE SAMPLE FCOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE	THO SYM	SS BLOWS/6-IN	WELL DATA
1.9/2.0 			SP 8,13,15,14	
61— 2.0/2.0 pho	ND (12") – white, fine, well graded, sphatic grains. SAND (12") – very ded, moderate red streaking.		SP 9,8,8,8	
	ND – white, very fine to fine, scatt esphatic grains.	ered fine black	SP 11,13,13,15	
	ND — white, fine to coarse, well gra osphatic grains.	aded, fine black	SP 11,15,18,27	

ONTRACTOR: Groundwater Protection Inc. DATE STARTED: 6/23/93 COMPLTD: 6/25/93 ETHOD: HSA CASE SIZE: 2" SCREEN INT.: 149-159 FT PROTECTION LEVEL: D OC ELEV: 182.15 FT. MONITOR INST.: FID/OVA TOT DPTH: 160FT. DPTH TO \$ 128.84 FT. SITE: 30 ET LABORATORY 3	ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-30-5	BORING NO.	
CASE SIZE: 2" SCREEN INT.: 149-159 FT PROTECTION LEVEL: D FOC ELEV: 182.15 FT. MONITOR INST.: FID/OVA TOT DPTH: 160 FT. DPTH TO \$\frac{1}{2}8.84 FT. DOGGED BY: A. Cohen MELL DEVELOPMENT DATE: SITE: 30 SOLL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SITE: 30 BLOWS/6-IN DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SITE: 30 BLOWS/6-IN DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SITE: 30 BLOWS/6-IN DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SITE: 30 BLOWS/6-IN DOGGED BY: A. Cohen SOLL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 2 DOGGED BY: A. Cohen SITE: 30 BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY: A. Cohen BLOWS/6-IN DOGGED BY	LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE	IIA
MONITOR INST.: FID/OVA TOT DPTH: 160FT. DPTH TO \$ 128.84 FT. DOGGED BY: A. Cohen WELL DEVELOPMENT DATE: SITE: 30 LABORATORY SAMPLE ID. STEE: 30 SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 SAND - white to pink, fine to medium, trace coarse. SP 11,16,23,25 SAND - light orange to yellowish brown, medium to coarse, trace gravel. SAND - tan to pale orange, medium to coarse, trace SP 18,21,30,42	CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/23/93	COMPLTD: 6/25	/93
SITE: 30 LABORATORY A. Cohen WELL DEVELOPMENT DATE: SITE: 30 LO/2.0 O SAND - white to pink, fine to medium, trace coarse. D SAND - light orange to yellowish brown, medium to coarse, trace gravel. 1.5/2.0 O SAND - tan to pale orange, medium to coarse, trace pebbles, motitied.	METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 149-159 FT	PROTECTION LEVEL: D	
SAND - light orange to yellowish brown, medium to coarse, trace gravel. SAND - tan to pale orange, medium to coarse, trace pebbles, mottled.	TOC ELEV.: 182.15 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 160FT.	DPTH TO ¥ 128.84 FT.	
SAND - white to pink, fine to medium, trace coarse. SP 11,16,23,25	OGGED BY: A. Cohen	WELL DEVELOPMENT DATE:		SITE: 30	
SAND - white to pink, fine to medium, trace coarse. SP 11,16,23,25	SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	AND COMMENTS	CE 2 SYMBOL	SOIL CLASS WI-9/SMOTH	WELL DATA
SAND - white to pale yellow orange, very fine to medium, poorly sorted, trace pebbles, slightly moist. O SAND - white, fine to medium, clay lens, slightly SP 19,28,36,41	0 SAI 0 SAI 0 SAI 0 SAI 0 SAI 0 SAI 0 SAI 0 SAI 0 SAI	ND – white to pink, fine to medium ND – light orange to yellowish bro arse, trace gravel.	n, trace coarse.	SP 24,32,36,40	
	1.6/2.0 med	dium, poorly sorted , trace pebble	es, slightly moist.	19 28 36 41	

	ld L	OG of WELL: WHF-30-6	S	BORING I	10.	
LIENT: SOUTHNAVFACENGCOM				PROJECT	NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protec	ion Inc.	DATE STARTED:	6/23/93	С	OMPLTD: 6/25/	/93
ETHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 1	49-159 FT	PROTECTI	ON LEVEL: D	
OC ELEV.: 182.15 FT.	MONITOR INST.: FID/OVA TOT DPTH: 160FT. DPTH TO \$ 128.84 FT.				-	
OGGED BY: A. Cohen	WELL DEVELOPMENT DAT	ſE:		SITE: 30		
SANDE OU BIOMBET T. THE SANDE OF THE CONCESS OF THE	SOIL/ROCK DES AND COMM Continued fro	ENTS	LITHOLOGIC	SOIL CLASS	BLOWS/8-IN	WELL DATA
2.0/2.0 N/A	CLAY - light gray, plastic.			CL	6,9,13,14	
2.0/2.0	CLAY - light gray to moderate mottled, plastic, stiff.	e yellowish brown,			11,13,18,22	
- N/A	CLAY - light gray to moderate	e yellowish brown,		CL	7.12.18.20	
2.0/2.0 N/A	plastic. CLAY – light gray to dark yell slightly plastic, mottled.	lowish orange, stiff,			13,16,23,?	
2.0/2.0	CLAY - light gray, stiff, plasti	ic.		CL	12,9,12,18	
2.0/2.0 13—	CLAY – light gray to dark yel moderately stiff, plastic.	lowish orange, mottled,		CL	0,0,14,14	
2.0/2.0 N/A	CLAY - light gray to dark yel stiff, plastic, slightly moist.	lowish orange, mosttled		CL	4,5,10,11	
18— - - - 2.0/2.0	CLAY (22") - light gray, mode SAND (2") - moderate red to medium to coarse, saturated.			CL	0,0,0,0	
1.0/2.0	CLAY (22") - gray to dark ye SAND (2") - dark yellowish o saturated.			CL	12,16,17,19	
58— - - 2.0/2.0	SAND – dark yellowish orange graded, saturated.	e, fine to medium, well		SP	25,35,38,44	

FITLE: NAVAL AIR STATION WHITING FI	LOG of WELL: WHF -32-1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA
CONTRACTOR: Groundwater Protection In	DATE STARTED	: 01/19/93 COMPLTD : 01/22/93
METHOD: HSA	CASE SIZE: 2" SCREEN INT.: 9	95-110 PROTECTION LEVEL: B & C
TOC ELEY: FT.	MONITOR INST.: OVA TOT DPTH: 110F	T. DPTH TO ¥ 100.09 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:	SITE: 32 - Northfield Hangar
DEPTH FT. SAMPLE OI STAWPS RECOVERY (Ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL SOIL CLASS OF OF OF OF OF OF OF OF OF OF OF OF OF
- (1-2') 0 SAND	- dark brown, moist, some silty clay.	Hand Auger
5— (5-7') 20/24 0 SAND	– light brown, fine, clay, poorly graded, moist t.	sc sc
10-12') B/24 95 Same	as above, red soft clay.	SC
- 1/24 95 plast	I – light brown with pink clay, moist, low icity, soft.	7,4,4,6 6,6,7,9
- -	3 – reddish brown, fine, medium stiff, slightly	7,9,9,10
) – alternating bands of pink, white, and tan, slightly moist , subrounded, poorly graded.	SP 3,5,4,4
30————————————————————————————————————	e as above.	SP 5,5,6,6
	D – fine, trace coarse and silt, poorly graded slightly moist.	SP 5,9,6,11
40	•	SP

ITLE: NAVAL AIR STATION	WHITING	FIELD	LOG of	WELL: WHF-32-1		BORI	NG NO.		
LIENT: SOUTHNAVFACENGC	ОМ					PROJ	ECT NO: RI PHASE	IIA	
ONTRACTOR: Groundwater P	rotection	Inc.		DATE STARTED: 0	1/19/93		COMPLTD: 01/22	/93	
ETHOD: HSA		CASE SIZE: 2"		SCREEN INT.: 95	:: 95-110 PROTECTION LEVEL: B & C				
OC ELEY.: FT.		MONITOR INST.: OVA		TOT DPTH: 110FT.		DPTH	TO ♀ 100.09 FT.		
OGGED BY: R. Nelson		WELL DEVELOPMENT	DATE:	· ·		SITE:	32 - Northfield Ha	ngar	
SAMPLE ID. SAMPLE TO SAMPL	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
20/24	50 SA	ND – white, fine, poorly	graded,	slightly moist.		SP	10,7,8,10		
5—(45-47) 24/24	160 Sã	ame as above, trace silt	and coar	se sand.		SP	12,9,9,8		
0 - 20/24		AND – white, fine, poorly ghtly moist, trace coars		sub-rounded,		SP	Pushed	1 2 2 2 2 2	
5— 20/24		ame as above with some o coarse sand.	pink silty	sand at 56.5 ft,		SP	Pushed		
0- (61-63) 20/24		AND – white, fine, poorly ightly moist.	y graded,	subrounded,		SP	12,14,20,28		
5 - 18/24	6 S	ame as above, trace silt	t at 6 6 ft.			SP	5,9,14,16		
18/24	J - 1-	AND - white, medium, po ightly moist, subangular.		d, trace coarse,		SP	5,8,12,14		
75	1 1	AND – tan, fine to medio oarse sand and silt.	um, poorly	graded, trace		SP	6,6,7,21		
30			E 2 of 3			SP_/	TAL SERVICES		

			IG FIELD	LOG of	WELL: WHF-32-1		BORI	NG NO.		
LIENT: SOUTHNAY	FACENGO	ОМ		· · · · · · · · · · · · · · · · · · ·			PROJ	ECT NO: RI PHASE	IIA	
ONTRACTOR: Grou	ndwater P	rotecti	on Inc.		DATE STARTED: 0	1/19/93		COMPLTD: 01/22	2/93	
ETHOD: HSA			CASE SIZE: 2"		SCREEN INT.: 95	-110	PROTECTION LEVEL: B & C			
OC ELEV.: FT.			MONITOR INST.: OVA		TOT DPTH: 110FT.		DPTH	TO ¥ 100.09 FT.	<u> </u>	
OGGED BY: R. Nel	son		WELL DEVELOPMENT	DATE:			SITE:	32 - Northfield Ha	angar	
L LABORATORY &	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
	20/24	13	SAND – tan, medium, poorl trace coarse sand.			X 20 X 20 X	SP	7,11,14,14	1 2 1 2 1	
6	16/24	5	SAND – very fine, white a alternating 1/2" to 1" lamin moist, little silt.				SP	5,7,9,9		
0	18/24		SANO – white, very fine, p sub–rounded.	poorly gra	ded, slightly moist,		SP	5,7,8,9	17.7	
(95-97")	20/24	3	Same as above, greyish w	hite.			SP	5,6,10,11		
	16/24		SAND – greyish white, fine subrounded, saturated.	e to mediu	m, poorly graded,		SP	6,9,14,17		
5—	24/24	350	Same as above, trace silt.	•			SP	2,1,3,12		
0-	24/24	500	Same as above.				SP	-,-,-,-		
5—										

DC ELEV.: 172.61 FT. DGGED BY: G. Kanchibhatla WELL LABORATORY HE SAMPLE ID. WELL (bdd)	E SIZE: 2" ITOR INST.: FID & OVA DEVELOPMENT DATE: SOIL/ROCK DESCRIP' AND COMMENTS	DATE STARTED: 6/2 SCREEN INT.: 96-11 TOT DPTH: 112FT.	7/93 1FT PROTE	ECT NO: RI PHASE COMPLTD: 6/28/ ECTION LEVEL: B,D TO \$\foatsigma\$ 100.40 FT. 32 BLOWS/6-IN	93
ETHOD: HOLLOW STEM AUGER CASE DC ELEV.: 172.61 FT. DGGED BY: G. Kanchibhatla WELL L' LABORATORY BY SAMPLE ID. WS O SILTY SA	ITOR INST.: FID & OVA DEVELOPMENT DATE: SOIL/ROCK DESCRIP' AND COMMENTS	SCREEN INT.: 96-11	DPTH SITE:	ECTION LEVEL: B,D TO ¥ 100.40 FT. 32	
DC ELEV.: 172.61 FT. DGGED BY: G. Kanchibhatla WELL LABORATORY H. SAMPLE ID. W. S. SAMPL	ITOR INST.: FID & OVA DEVELOPMENT DATE: SOIL/ROCK DESCRIP' AND COMMENTS	TOT DPTH: 112FT.	DPTH SITE:	TO ¥ 100.40 FT. 32	
COGED BY: G. Kanchibhatla WELL LABORATORY WELL LABORATORY WELL LABORATORY WELL O SILTY SA	SOIL/ROCK DESCRIP AND COMMENTS		SITE:	32	WELL DATA
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS	TION	<u> </u>		WELL DATA
5 O SILTY SA	AND COMMENTS	TION	SYMBOL SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
JILII JA	.NN – dark vellowish oran				
JILII JA	.ND – dark vellowish oran				
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ge, fine, damp to	SM	2,2,2,3	
0— <1 CLAYEY S	SILTY SAND – moderate r edium.	eddish orange,	SM	6,7,7,9	
5— - - 1.8/2.0 30 CLAYEY S medium, d	SAND – moderate reddish lamp.	orange, fine to	_ sc	2,4,6,6	
0— - 30 CLAYEY S	SAND (10") SAND (10") p.	reddish orange,	SC/SP	2,3,10,5	
5— 70 SAND - r	eddish orange, to yellow:	sh orange, fine to	SP	3,4,5.8	
0	pinkish gray, fine to mediu damp.	m, some silt, poorly	SP	5,6,9,10	
65 SAND - 1 1.5/2.0 trace co	pinkish to yellowish gray, arse & gravel, poorly gra	fine to medium, ded, sub-angular.	SP	2,5,10,9	

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-32-2	воя	RING NO.			
LIENT: SOUTHNAVFACENGCOM			PRO	DJECT NO: RI PHASE	IIA		
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/2	7/93	COMPLTD: 6/28/93			
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 96-111	FT PRO	PROTECTION LEVEL: B,D			
OC ELEV.: 172.61 FT.	MONITOR INST.: FID & OVA	TOT DPTH: 112FT.	DPTH TO ¥ 100.40 FT.				
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE	E: 32			
LEPTH FT. SAMPLE SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 1	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA		
, , , , , , , , , , , , , , , , , , , ,	ND — pinkish gray, fine to medium mp.		SP				
70 SA	ND - SAA, trace gravel.		SP	6,8,16,16			
0— 5 SA	ND - ligh gray, fine, poorly grade	ed, dry.	SP	6,16,16,13			
55— 1.8/2.0 5 SA	Α.		SP	7,10,3,10			
1	AYEY SAND (3") — pale pink. SA nt pinkish gray, fine.	ND (15") - very	SP	9,13,27,20			
5—————————————————————————————————————	Α.		SP	9,20,24,30			
0—————————————————————————————————————	Α.		SP	8,21,20,30			
	.ND - very light gray, fine to med aded, dry.	ium, poorly	SP	9,20,33,32			
0 10			\ SP	7 10,28,28,30			

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-32-2	BORI	NG NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/27/93		COMPLTD: 6/28/	93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 96-111 FT	PROTE	CTION LEVEL: B,D	
ΓΟC ELEV.: 172.61 FT.	MONITOR INST.: FID & OVA	TOT DPTH: 112FT.	DPTH	TO ¥ 100.40 FT.	
.0GGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE:	32	
DEPTH DEPTH SAMPLE SAMPLE SAMPLE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAC	THO!	SOIL CLASS	BLOWS/6-IN	WELL DATA
SAN	ID – fine to medium, trace coarse erately well graded.		SP		
	ID — reddish orange to yellowish rly graded, moist.	orange, fine,	SP	9,16,22,19	
	ID — very light gray, very fine to ded, moist.	fine; poorly	SP	9,18,24,26	
	iD – yellowish orange to reddish , pale pink bands, moist.	orange, very	SP	15,15,16,20	
	ID – light gray, medium, 2" silty c wet.	layey sand at	SP	13,26,17,21	
70 SAN	ID - SAA, light yellow.		SP	?,12,19,20	
10—					
5					

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-32-3	BORING	3 NO.		
CLIENT: SOUTHNAVFACENGCOM	· · · · · · · · · · · · · · · · · · ·		PROJEC	CT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater Protectio	n Inc.	DATE STARTED: 6/26/93		COMPLTD: 6/26	/93	
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 95-110 FT	PROTEC	TION LEVEL: D,	Mod. D	
TOC ELEV.: 172.58 FT.	MONITOR INST.: FID & OVA	TOT DPTH: 112FT.	DPTH TO ♀ 99.79 FT.			
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 3	2		
DEPTH FT. CITALANDER SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	2 LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
	ILTY SAND – light yellow to reddis ome clay.	sh orange, fine,	SM	3,6,10,11	11 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	
10	ΔΔ.		SM	3,5,6,13		
15— 1.5/2.0	ΔΔ.		SM	3,5,5,8		
30 S	AA .	/// ///	SM	6,6,7,8		
- 1.75/2.d g	AND — pale yellow to light orange, aded, some silt, trace clay, trace b—rounded.		SP	4,6,6,8		
50 S	AA – white, no silt.		SP	3,6,6,12		
35— - - 2.0/2.0	ΔΔ.		SP	3,6,8,8		
70	PAGE 1 of 32		SP	10,14,16,21 L SERVICES,		

TITLE: Naval Air Station Whiting F	-ieid	LOG of WELL: W	HF-32-3	BORIN	IG NO.	
CLIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Prote	ction Inc.	DATE S	TARTED: 6/26/93		COMPLTD: 6/26	/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREE	N INT.: 95-110 FT	NT.: 95-110 FT PROTECTION LEVEL: D. Mod		
TOC ELEV.; 172.58 FT.	MONITOR INST.: FID	& OVA TOT DP	TH: 112FT.	DPTH 1	「 O ♀ 99.79 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT	DATE:		SITE:	32	
DEPTH F1. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	DESCRIPTION DMMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
70	SAA. SAND - ligh gray, fine.			SP	7,12,15,23	
2.0/2.0	SAA.			SP	7,12,16,16	
5— 100	SAA.			SP	6,13,15,9	
0 - 2.0/2.0 90	SAND – light gray, very fir	ne,		SP	5,9,16,18	
50	SAA.			SP	6,10,16,20	
2.0/2.0	SAA.			SP	15,20,28,30	
5——————————————————————————————————————	SAA - some coarse.			SP	10,16,20,20	
600				SP	9,19,35,32	

TITLE. Navar Air	Station Whi	ting Fiel	d	LOG o	f WELL: WHF-32-3	•	BORI	NG NO.	
CLIENT: SOUTHN	AVFACENG	СОМ					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Gr	oundwater	Protecti	on Inc.		DATE STARTED:	6/26/93		COMPLTD: 6/26	/93
METHOD: HOLLOW	STEM AUG	ER	CASE SIZE: 2"		SCREEN INT.: 9	5-110 FT	PROTE	ECTION LEVEL: D,	Mod. D
TOC ELEV.: 172.58	3 FT.	<u></u>	MONITOR INST.: F	AVO & DI	TOT DPTH: 112FT		DPTH	TO ¥ 99.79 FT.	
LOGGED BY: G. K	anchibhatl	3	WELL DEVELOPMEN	NT DATE:			SITE:	32	
L LABORATORY SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	AND Continue	CK DESCRIP COMMENTS d from PA	AGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
85—	1.8/2.0	550	SAND – very light gray,	, very fine,	dry.		SP	16,35,36,30	
90-	1.8/2.0		SAA.				SP	16,34,31,41	
95—	1.8/2.0		SAND – moderate reddi ome silt.	sh orange,	pale yellow bands,		SP	0,16,27,31	
000-	1.5/2.0		SAND — very light gray	, fine, some	silt, wet.		SP	0,0,23,28	
105	1.5/2.0		SAND — very light gray	, fine, dense	e, wet.		SP	6,13,14,20	
110									
115—									

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-32-4	BORING	NO.		
CLIENT: SOUTHNAVFACENGCOM			PROJEC	T NO: RI PHASE	IIA -	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/29/93		COMPLTD: 6/29	/93	
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 95-110 FT	PROTECT	FION LEVEL: D.	D, Mod. D	
TOC ELEV.: 172.07 FT.	MONITOR INST.: FID & OVA	TOT DPTH: 112FT.	ортн то	¥ 99.98 FT.		
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 32			
DEPTH FT. GI 374MWS TO TO TO TO TO TO TO TO TO TO TO TO TO	SOIL/ROCK DESCRIPT AND COMMENTS	25 LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5—————————————————————————————————————	TY SAND - reddish brown, mediu	m. ///	SM	2,6,6,8		
10————————————————————————————————————	Δ.		SM	3,4,10,18		
15— N/A CLA dar	AYEY SAND – pinkish gray to rec np.	ldish orange,	- sc	2,2,6,6		
	AYEY SAND – pinkish gray, fiine, nter of spoon.	1" clay lense at	sc	4,3,4,8		
	AYEY SAND – ligh yellow to pinki arse, some silt.	sh gray, medium to	- sc	4,7,7,10		
	ND – light pinkish gray to reddisl e to fine, some medium to coarse		SP	4,7,15,10		
	ND – light pinkish gray to light g arse, some silt, poorly graded, da		SP	4,9,11,11		
40—			SP	6,10,18,24		

TLE: Naval Air Station Whiting Field	LOG of WELL:	WHF-32-4	BORING NO.	
IENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHA	SE IIA
ONTRACTOR: Groundwater Protection Inc.	DATE	STARTED: 6/29/93	COMPLTD: 6/3	29/93
ETHOD: HOLLOW STEM AUGER CA	SE SIZE: 2" SCREE	N INT.: 95-110 FT	PROTECTION LEVEL:	D, Mod. D
OC ELEV.: 172.07 FT. NO	ITOR INST.: FID & OVA TOT D	PTH: 112FT.	DPTH TO ¥ 99.98 FT.	
DEGED BY: G. Kanchibhatla	L DEVELOPMENT DATE:	· · · · · · · · · · · · · · · · · · ·	SITE: 32	<u> </u>
FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS NI-9/SMO78	WELL DATA
	very light gray, fine, some coarse.		SP	
5			SP 7,11,17,19	
1.8/2.0 <10 SAA.			SP 8,16,24,26	
5— - 1.8/2.0 6 SAA.			9,16,26,24	
	AND (4") – pale pink, fine moist. S y, very fine to fine.	SAND -	SP 8,11,11,11	
	very light gray, very fine to fine, ase at center of spoon, light pink.	l" sandy	SP 8,11,26,24	
0	very light gray, very fine to fine, o	damp.	SP 12,21,30,33	
	pale pink to light gray, fine to med well graded.	lium, some	9,17,30,28	
0-1 140			10,26,21,19	

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	LUG OI	f WELL: WHF-32-4	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	SE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/29/93	COMPLTD: 6/2	9/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 95-110 FT	PROTECTION LEVEL: 0), Mod. D
TOC ELEV.: 172.07 FT.	MONITOR INST.: FID & OVA	TOT DPTH: 112FT.	DPTH TO ¥ 99.98 FT.	
.0GGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 32	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI SYM	SOIL CLASS AI-9/SMOT8	WELL DATA
SAN	ID – light pinkish gray, very fine lium, damp.		SP	
- 1.8/2.0 med	ND – reddish brown to pale pink, lium, poorly graded, damp, 1" cla spoon.		SP 17,25,21,23	
10 - 410 SAA	A, some medium & coarse.		SP 15,36,28,30	
05	A - 1" claey sand lense at cente	er of spoon.	SP 6,17,15,19	
0	ND (16") – fine to medium, some :) – very light gray, wet, strong : r.	silt. SILTY SAND hydrocarbon	SP/SC 11,15,15,15	
5	ND – light gray, fine to medium, s	some silt, wet.	SP N/A	
15—				

CONTRACTOR: Groundwater Protection Inc. DATE STARTED: 5/ METHOD: HOLLOW STEM AUGER CASE SIZE: 2" SCREEN INT.: 94- TOC ELEV.: 0 FT. HONITOR INST.: FID & OVA TOT DPTH: 109FT. LABORATORY BY SAMPLE ID. BY SOIL/ROCK DESCRIPTION AND COMMENTS SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.		PROT	JECT NO: RI PHASE COMPLTD: 5/24 FECTION LEVEL: D. H TO \$\foatsize\$ 98.60 FT. E: 32 BLOWS/6-IN	/93
METHOD: HOLLOW STEM AUGER CASE SIZE: 2" SCREEN INT.: 94- FOC ELEV.: 0 FT. MONITOR INST.: FID & OVA TOT DPTH: 109FT. WELL DEVELOPMENT DATE: SOIL/ROCK DESCRIPTION AND COMMENTS SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.	109 FT	DPTH	TECTION LEVEL: 0, 1 TO \$ 98.60 FT. :: 32	Mod. D
MONITOR INST.: FID & OVA TOT DPTH: 109FT. LOGGED BY: D. Wong WELL DEVELOPMENT DATE: SOIL/ROCK DESCRIPTION AND COMMENTS SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.		DPTH	1 TO 및 98.60 FT. ∷ 32	
WELL DEVELOPMENT DATE: LABORATORY WELL DEVELOPMENT DATE: SOIL/ROCK DESCRIPTION AND COMMENTS SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.	LITHOLOGIC SYMBOL	SITE	: 32	WELL DATA
SOIL/ROCK DESCRIPTION AND COMMENTS SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.	LITHOLOGIC SYMBOL	<u></u>		WELL DATA
SEE SOIL BORING WHF-32-SB-7 FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
LITHOLOGICAL DESCRIPTIONS.				
20— 25— 30— 30— 16/24 0 SILTY CLAY – very pale orange, dark yellow orange streaking. SAND – greyish pink, fine to medium grained, moderate red orange streaking.		CL	10,13,21,18	

TITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-32-5	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	E IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/23/93	COMPLTD: 5/2	4/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 94-109 FT	PROTECTION LEVEL: 0	Mod. D
TOC ELEV.: 0 FT.	MONITOR INST.: FID & OVA TOT OPTH: 109FT.		DPTH TO ¥ 98.60 FT.	
LOGGED BY: D. Wong	WELL DEVELOPMENT DATE:		SITE: 32	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	I HOI	SOIL CLASS BLOMS/8-IN	WELL DATA
SAN	ND – very light grey, fine to medi arce, trace black graines.		SP	
45				
0 San	ne as above.		SP 10,16,25,32	
5— 0 San	ne as above.		SP 8,22,24,25	
0 - 10 San	ne as above.		SP 13,17,27,30	
	ND – off-white to very light grey ined, trace to no silt, firmly pack ste.		SP 10,12,24,25	
70— - 18/24 300 San	ne as above.		SP 10,12,15,17	
75— 70 Sar	ne as above.		SP 11,22,31,31	7,1,2,2,4,2,1
30			12,27,29,33	

DATE STARTED: 5/23/93 COMPLTO: RI PHAS CONTRACTOR: Groundwater Protection Inc. CASE SIZE: 2" METHOD: HOLLOW STEM AUGER CASE SIZE: 2" MONITOR INST: FID 6 OVA TOT DPTH: 109FT. DOGELEY: 0 FT. DOGELEY: 0 FT. MONITOR INST: FID 6 OVA TOT DPTH: 109FT. DOGELEY: 0 FT. MONITOR INST: FID 6 OVA TOT DPTH: 109FT. DOGELEY: 0 FT. DOGELEY: 0	: Naval Air Station Whiting Field	LOG of W	L: WHF-32-5	BORING NO.	
RETHOD: HOLLOW STEM AUGER CASE SIZE: 2" SCREEN INT.: 94-109 FT PROTECTION LEVEL: D TOC ELEV: 0 FT. MONITOR INST.: FID & OVA TOT DPTH: 109FT. DPTH TO \$ 98.80 FT. SITE: 32 SIL LABORATORY SAMPLE ID. SAMP	IT: SOUTHNAVFACENGCOM			PROJECT NO: F	RI PHASE IIA
NOTICE ELEV. O FT. MONITOR INST.: FID & OVA TOT DPTH: 109FT. DPTH TO \$ 98.60 FT. DPTH TO \$ 98.60 FT. SITE: 32 SOLL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 IS/24 SAND - pale orange, fine grained, trace off-white SP 15,40,50,- 16/24 70 SILTY SAND - reddish brown, fine grained, firmly packed, moiste. SP 13,18,16,22 18 CLAYEY SAND - brownish red, fine grained, some grey clay motiting, some silt, low to medium plasticity, moiste. 100 21/24 100 SAND - off-white, fine grained, trace pink silt; 2" SP 8,12,16,19 150 Same as above, saturated; bottom 4" light yellow brown, trace silt.	RACTOR: Groundwater Protection In		E STARTED: 5/23/93	COMPL	TD: 5/24/93
WELL DEVELOPMENT DATE: SITE: 32 SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 2 18/24 Same as above, bottom 4" orange pink. SP 15/40,50,- 16/24 18 CLAYEY SAND - reddish brown, fine grained, firmly packed, moiste. SP 18/24 18 CLAYEY SAND - brownish red, fine grained, some grey clay mottling, some silt, low to medium plasticity, moiste. SP 8,8,8,15 8,12,16,19 100 24/24 150 Same as above, saturated; bottom 4" light yellow brown, trace silt.	OD: HOLLOW STEM AUGER	ASE SIZE: 2"	REEN INT .: 94-109 FT	PROTECTION L	EVEL: D, Mod. D
LABORATORY SAMPLE ID. So Same as above, bottom 4" orange pink. Soll-Rock Description AND Connection PAGE 2 ISAND - pale orange, fine grained, trace off-white sand. SP 15,40,50,- Same as above, bottom 4" orange pink, SP 15,40,50,- ISAND - reddish brown, fine grained, firmly packed, moiste. SP 13,18,16,22 ISAND - reddish brown, fine grained, some grey clay mottling, some silt, low to medium plasticity, moiste. SP 8,12,16,19 ISAND - off-white, fine grained, trace pink silt; 2" lense clayey sand at 101", plastic, soft.	ELEV.: 0 FT.	ONITOR INST.: FID & OVA	T DPTH: 109FT.	DPTH TO \$ 98.0	80 FT.
SAND - pale orange, fine grained, trace off-white SP 15/24 25 Same as above, bottom 4" orange pink. SP 15,40,50,- 10/24 70 SILTY SAND - reddish brown, fine grained, firmly packed, moiste. SN 13,18,16,22 18 CLAYEY SAND - brownish red, fine grained, some grey clay motiting, some silt, low to medium plasticity, moiste. SAND - off-white, fine grained, trace pink silt; 2" SP 100 SAND - off-white, fine grained, trace pink silt; 2" SP 150 Same as above, saturated; bottom 4" light yellow brown, trace silt.	ED BY: D. Wong	ELL DEVELOPMENT DATE:		SITE: 32	
SAND - pale orange, fine grained, trace off-white SP	SAMPLE SAMPLE SAMPLE (ppm)	AND COMMENTS	N LITHOLOGIC SYMBOL	SOIL CLASS	WELL DATA
SILTY SAND - reddish brown, fine grained, firmly packed, moiste. 18 CLAYEY SAND - brownish red, fine grained, some grey clay mottling, some silt, low to medium plasticity, moiste. 100 SAND - off-white, fine grained, trace pink silt; 2" lense clayey sand at 101, plastic, soft. 150 Same as above, saturated; bottom 4" light yellow brown, trace silt.	SAND			SP	
packed, moiste. CLAYEY SAND - brownish red, fine grained, some grey clay mottling, some silt, low to medium plasticity, moiste. SAND - off-white, fine grained, trace pink silt; 2" SP 8,12,16,19 lense clayey sand at 101', plastic, soft. Same as above, saturated; bottom 4" light yellow brown, trace silt.	The same	as above, bottom 4" orange pir		SP 15,40	1.50,-
grey clay mottling, some silt, low to medium plasticity, moiste. 100 SAND - off-white, fine grained, trace pink silt; 2" SP 8,12,16,19	Jac 1		レン	13,18	,16,22
lense clayey sand at 101', plastic, soft. 21/24 150	12/24 grey	lay mottling, some silt, low to m		- SC 8,8	.8,15
brown, trace silt.			ink silt; 2"	SP 8,12	[. []
			ght yellow	SP 6,5	,11,12
15—					

TITLE: Naval Air Station Whiting Field	LUG of	WELL: WHF-33-1	BORING NO.	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	E IIA
CONTRACTOR: Groundwater Protectio	in Inc.	DATE STARTED: 6/14/93	COMPLTD: 6/15	/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 112-127 FT.	PROTECTION LEVEL: B.	.D
TOC ELEV.: 180.78 FT.	MONITOR INST.: OVA	TOT DPTH: 129FT.	DPTH TO ¥ 118.43 FT.	
OGGED BY: D. WONG	WELL DEVELOPMENT DATE:		SITE: 33	
DEPTH F17: CIL PARAMES SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	N N N N N N N N N N N N N N N N N N N	SOIL CLASS	WELL DATA
	EE WHF-33-2 FOR LITHOLOGICAL			

TLE: Naval Air Station Whitin	ng Field	LOG of WELL: WHF-33-1		BORING	9 NO.	
IENT: SOUTHNAVFACENGO	ОМ			PROJEC	T NO: RI PHASE	IIA
NTRACTOR: Groundwater Pr	rotection Inc.	DATE STARTED:	6/14/93		COMPLTD: 6/15/	93
THOD: HOLLOW STEM AUGE	R CASE SIZE: 2"	SCREEN INT.: 1	12-127 FT.	PROTEC	TION LEVEL: B.C)
OC ELEV.: 180.78 FT.	MONITOR INST.: OVA	TOT DPTH: 129F	т.	DPTH TO	Q 118.43 FT.	
GGED BY: D. WONG	WELL DEVELOPMENT	DATE:		SITE: 33	3	
SAMPLE SAMPLE SAMPLE	AND CO	DESCRIPTION DIMMENTS From PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BŁOWS/6-IN	WELL DATA
72.0/2.0	9 SILTY CLAY (1') - light grasoft, plastic. SAND (1') - fine, some silt, dry.	ay, mottled brownish red,		CL/SP	N/A	
	10	•		SP /	N/A	

TITLE: Naval Air Station Whiting Field	LOG o	f WELL: WHF-33-1	BORING NO.	ļ
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHAS	SE IIA
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/14/93	COMPLTD: 6/1	5/93
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 112-127 FT.	PROTECTION LEVEL: 8	3,D
TOC ELEV.: 180.78 FT.	MONITOR INST.: OVA	TOT DPTH: 129FT.	DPTH TO ♀ 118.43 FT.	
LOGGEÓ BY: D. WONG	WELL DEVELOPMENT DATE:		SITE: 33	
CEPTH SANTE SANTE TATA SANTE TATA TATA TATA TATA TATA TATA TATA	SOIL/ROCK DESCRIP AND COMMENTS Continued from PA	THO	SOIL CLASS NI CLASS	WELL DATA
95— 1.0/2.0 1.0/2.0 1.1/2.0 2 SAI tra 2.0/2.0 115— 2.0/2.0 5 SIL ligh 5 SAI 2.0/2.0 3 SIL SAI 5 SAI	ND - light yellow, fine, bannded wn, some silt. ND - bannded orange, yellow, a ce silt, dry. ND - pink to brownish yellow, finderately dense. NDY CLAY - mottled brown, yellow gray, some silt, moderately st. TY SAND (I') - mottled brown, at gray, soft, plastic. ND - brownish yellow, fine, mode. TY SAND (I') - SAA. ND (I') - off-white to light pink curated.	nd off-white, fine, ne, trace silt, ow, purple, and iff, plastic. yellow, purple and erately dense.	SP N/A SP N/A N/A SM SP N/A SM SP	
130—				
135		·		

ITLE: Naval Air Station Whiting	rielu	LOG of WELL: WHF-33-	·2	BORIN	IG NO.	
LIENT: SOUTHNAVFACENGCOM	· · · · · · · · · · · · · · · · · · ·			PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Pro	tection Inc.	DATE STARTED): 6/23/93		COMPLTD: 6/25/	/93
IETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.:	113-128 FT.	PROTE	CTION LEVEL: D	
OC ELEV.: 181.71 FT.	MONITOR INST.: OVA	TOT DPTH: 130	FT.	OPTH T	' 0 119.39 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT	DATE:		SITE: 3	33	
CEPTH TI. SAMPLE SAMPLE HEADSPACE	SOIL/ROCK I	DESCRIPTION MMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
10	O SILTY SAND — reddish bro slightly moist.	wn, fine, poorly graded,		SM	3,4,5,4	
20	O SAA			SM	3,3,5,4	
2.0/2.0	O SILTY SAND (10") - SAA. fine to fine, 4" lense of sil orange.		y <u>7,7,</u>	SM SP	3,8,9,22	
	O SAND – white, very fine to	o fine, poorly graded.		SP	7,13,17,16	

ITLE: Naval Air Station Whiting Field	LOG o	f WELL: WHF-33-2	BORING NO.	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PH	HASE IIA
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/23/93	COMPLTD:	6/25/93
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 113-128 FT.	PROTECTION LEVEL	.: D
OC ELEV.: 181.71 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT.	DPTH TO ¥ 119.39 F	т.
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 33	
SAMPLE SAMPLE RECOVERY (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO:	SOIL CLASS BLOWS/6-1	Z WELL DATA
	.ND – white to pale pink, fine, po	orly graded.	SP 11,18,6,20	
50— - - - - - - - - - - - - - - - -	IND - SAA.		SP 5,9,13,15	
- 1.5/2.0 fin	.AY (8") – fat. SAND – light gra ne to fine, some silt, clay lenses, t, 2" thick.		CH 5,16,20,2	
	.AY (8") — fat, soft, plastic, dam ay to white, fine, dry.	p. SAND - light =====	5,21,38,3 SP	5
35—				
90] 0	PAGE 2 of 3		IO,24,27 DNMENTAL SERVI	

	LOG of	WELL: WHF-33-2	BORING NO.	
LIENT: SOUTHNAVFACENGCOM	<u> </u>	·	PROJECT NO: R	I PHASE IIA
ONTRACTOR: Groundwater Protectio	n Inc.	DATE STARTED: 6/23/93	COMPLT	r D : 6/25/93
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 113-128 FT.	PROTECTION LE	VEL: D
OC ELEV.: 181.71 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT.	DPTH TO ♀ 119.3	9 FT.
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 33	
RECOVERY (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS BROAD	WELL DATA
95— -	AND - light gray to pale purple, fi		SP 11,23,:	24,34
	SAND – light gray pale purple, fine graded, some silt, moist.	to medium, poorly	SP 40,5	60,ref
75/2.d s	CLAY (14") — gray to purple mottli stiff, moderately plastic. CLAYEY — purple to gray mottling, fine, wet	SILTY SAND (4")	CH 6,7,5	22,35
1 71 . 1	SAND – gray to light gray, very fil wet.	ne, trace mica,	SP 0,0,1	24,30
125—	SAA, 2" clay lense near bottom of	spoon.	SP 0,0	0,0,0
130—				

'ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-33-3	BORING NO.		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PHASE I	IA	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/22/93	COMPLTD: 6/23/9	3	
METHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 113-128 FT.	PROTECTION LEVEL: D		
OC ELEY.: 182.01 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT.	DPTH TO ♀ 119.84 FT.		
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 33		
SAMPLE SAMPLE COVERY (PPIN)	SOIL/ROCK DESCRIPTI AND COMMENTS	2 LITHOLOGIC SYMBOL	SOIL CLASS BYSMOTH	WELL DATA	
5— - - - - - - - - - - - - - - - - - - -	.TY SAND - reddish brown, fine, p	poorly graded.	SM 3,2,3,4		
20— - - - - -	A		SM 6,6,5,4		
	ND – reddish brown to white, very orly graded.	y fine to fine,	SP 4,5,10,10	"	
	ND – white, very fine to fine, poo	orly graded.	SP 3,10,12,20	1212121212121212	

TITLE: Naval Air Station Wh	iting Field		LOG of WELL: WHF-33-3		BORIN	NG NO.		
CLIENT: SOUTHNAVFACENO	COM				PROJE	CT NO: RI PHASE	IIA	
CONTRACTOR: Groundwater		Inc.	DATE STARTED: 6/22/93			COMPLTD: 6/23/93		
METHOD: HOLLOW STEM AU		CASE SIZE: 2"	SCREEN INT.: 11	3-128 FT.	PROTE	CTION LEVEL: 0		
TOC ELEV.: 182.01 FT.		MONITOR INST.: OVA	DVA TOT DPTH: 130FT.			TO ¥ 119.84 FT.		
LOGGED BY: G. Kanchibhat	la .	WELL DEVELOPMENT	DATE:		SITE:	33		
RECOVERY	HEADSPACE (ppm)	AND C	DESCRIPTION OMMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6IN	WELL DATA	
50— 1.5/2			nk, fine, poorly graded.		SP	6,8,8,11		
60—		ND – light yellow to pa ttom 2" sandy silt.	ale pink, fine to medium,		SP	12,10,16,26		
70—			te, very fine to fine, some light gray, fat, 2" thick.		SP	4,9,13,15		
75—————————————————————————————————————	2.0 S/	ND (4") - yellowish or	o white, fine to medium. range, fine to medium. SANI ne to medium, some coarse,		SP	13,17,29,35		
80-1.5/		IND – light gray to whi	ite, fine to medium.		SP	8,15,32,30		
85—							A	

	Loc	6 of WELL: WHF-33-3			IG NO.	
.IENT: SOUTHNAVFACENGCOM ONTRACTOR: Groundwater Protection I		DATE CTARTER	2/00/02	PROJE	CT NO: RI PHASE	
		DATE STARTED:		DOCTE	COMPLTD: 6/23/	93
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 113			CTION LEVEL: D	
OC ELEV.: 182.01 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT	•	`	10 ♀ 119.84 FT.	
GGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:			SITE:		· · · · · · · · · · · · · · · · · · ·
FT. OI 374WYS T. SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCR AND COMMEN Continued from	TS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	ID – very fine to fine, pale plations,			SP		
71.5/2.0 O SAA				SP	12,30,42,42	
- - - - - - - - - - - - - - - - - - -	TY SAND - light yellow, moist	L	77.72	SM	40.42,40,45	
	ID – purple and yellow striati ense of clay, at bottom, wet.			SP	22,35,24,35	
72.0/2.0 SAN	ID - SAA, 2" lense of clay at	top of spoon.		SP	15,16,23,40	
0 SAN wet.	ID – light gray to white, fine	to medium, some silt,		SP	N/A	
) <u>-</u>						

	Station Whiting Fiel		LOG of WELL: WHF -33-	4	BORIN		
LIENT: SOUTHN					PROJE	CT NO: RI PHASE	
ONTRACTOR: Gr	oundwater Protecti	on Inc.	DATE STARTED		COMPLTD: 6/16/93		
IETHOD: HOLLOW	STEM AUGER	CASE SIZE: 2"	SCREEN INT.:	PROTEC	CTION LEVEL: D		
OC ELEV.: 180.5	8 FT.	MONITOR INST.: 0VA	TOT DPTH: 129F	T	OPTH T	O ¥ 118.42 FT.	
OGGED BY: D. V	IONG	WELL DEVELOPMENT	DATE:		SITE: 3	3	
L LABORATORY SAMPLE ID.	SAMPLE RECOVERY HEADSPACE (ppm)		DESCRIPTION IMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—		SANDY SILT – brownish re very low plasticity , dry.	d, fine, moderately stiff,		ML	N/A	"
25—	2.0/2.0	SANDY SILT - SAA.			ML	N/A	
30	0	SANDY SILT - light tan, v	ery fine, firm, dry.		ML	N/A	
40	1.7/2.0	SAND - light tan to light with light pink, firm, dry, 2 pink, stiff, moderate plast	" lense of clayey sand, lig	ght	SP/SC	N/A	

TLE: Naval Air Station Whiting Field IENT: SOUTHNAVFACENGCOM	LOG of	WELL: WHF-33-4	BORING NO. PROJECT NO: RI PHA	SE IIA
NTRACTOR: Groundwater Protection 1	Inc.	DATE STARTED: 6/15/93	COMPLTD: 6/	
THOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 113-128 FT.	PROTECTION LEVEL:	D .
C ELEV.: 180.56 FT.	MONITOR INST.: 0VA	TOT DPTH: 129FT.	DPTH TO ₹ 118.42 FT.	
GGED BY: D. WONG	WELL DEVELOPMENT DATE:		SITE: 33	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS BLOMS/6-IN	WELL DATA
1.6/2.0 som	NDY SILT – light tan to light yell le sand, firm, dry.	low, very fine,	ML N/A	\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"
7 1.8/2.0 O SAN	NDY SILT – SAA, off-white, trac	ce clay.	ML N/A	
2.0/2.0 N/A (1')	TY CLAY (1') — light gray, mottle l light orange, plastic, moderate — SAA. I CLAY (1.5') — SAA. SILTY CLA	ly stiff. FAT CLAY	OH/CL N/A	
- 1.7/2.0 bro	ND — light brown, fine, some silt, wn, plastic soft. SAND — off-wl , stiff, dry.		SP/CL/SP N/A	
	ND – light yellow, fine, interbedo It pink, stiff, dry.	ded off-white and	SP N/A	

TITLE: Naval Air Station Whiting Field		LOG of	WELL: WHF-33-4		BORI	NG NO.	
LIENT: SOUTHNAVFACENGCOM					PROJ	ECT NO: RI PHASE	IIA
CONTRACTOR: Groundwater Protection	Inc.		DATE STARTED: 6	15/93		COMPLTD: 6/16/9	93
4ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"		SCREEN INT.: 113-	128 FT.	PROTECTION LEVEL: D		
TOC ELEV.: 180.56 FT.	MONITOR INST.: OVA		TOT OPTH: 129FT.	====	DPTH TO ¥ 118.42 FT.		
OGGED BY: D. WONG	WELL DEVELOPMENT	DATE:			SITE:	33	
SANDE STANDERS FILL STANDERS F	SOIL/ROCK AND CO	DMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
SA	ND - light orange, to lig ff, dry.				SP		
	ND – brownish yellow to ice silt, stiff, dry.	o brownist	n orange, fine,			N/A	121212121
0.2 SA	ND - brownish-red, fine	e, stiff, dr	у.		SP	N/A	
	AYEY SAND — mottled t d light gray, fine, some				SC	N/A	
110— 1.0/2.0 1.0 SA	ND – off-white, fine to Y-	coarse,	stiff, sub-rounded,		SP	N/A	那是
1.7/2.0	AND - off-white, fine, s	tiff, dry.			SP	N/A	
20	AND - SAA, saturated.				SP	N/A	
1.0 S	AND – SAA, trace clay.				SP	N/A	
130—							
135—		E 3 of 3				 	1110

TENT. CONTUNAVE ACENICOM			LOG of WELL: WHF-33-5			BORING NO.		
IENT: SOUTHNAVFACENGCO	MC					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Pr	otection Inc.		[DATE STARTED: 5	/21/93		COMPLTD: 5/21/	93
ETHOD: HOLLOW STEM AUGE	R CA	SE SIZE: 2"		SCREEN INT.: 110	-125 FT.	PROTE	CTION LEVEL: D	· · · ·
OC ELEV.: 178.7 FT.	М	NITOR INST.: FID		TOT DPTH: 125FT.		DPTH	TO ♀ 114.59 FT.	
OGGED BY: G. Kanchibhatla	WE	LL DEVELOPMENT DA	TE:	· · · · · · · · · · · · · · · · · · ·		SITE:	33	
SAMPLE ID. SAMPLE TO SAMPL	HEADSPACE (ppm)	SOIL/ROCK DE AND COMN		NO	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	SEE WH	F-33-2 FOR LITHOLO	OGIC DA	TA.				

APPENDIX D RI PHASE IIA PCPT LITHOLOGIC DESCRIPTIONS

ITLE: Naval Air Station Whiting Field	LOG of	WELL: WHF-33-5		BORIN	NG NO.	
LIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Groundwater Protection 1	Inc.	DATE STARTED: 5/21/93			COMPLTD: 5/21/	93
ETHOD: HOLLOW STEM AUGER	CASE SIZE: 2"	SCREEN INT.: 110-1	25.FT.	PROTE	CTION LEVEL: D	
OC ELEV.: 178.7 FT.	MONITOR INST.: FID	TOT DPTH: 125FT.		DPTH 1	Γ Ο 및 114.59 FT.	
OGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:			SITE: 3	33	
FFT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA(ON GE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
12/24 SANE slight 12/24 O SILT to we CLAY 12/24 O SANE	 grey, plastic, moist. white to purple, fine to mediutly moist. Y SAND - white, fine to medium get. grey, plastic, moist. white, fine, saturated, loose. as above. 			CH SP	13,12,15,16 18,22,28,25	

TLE: NAVAL AIR ST	ATION WITT		LOG of 1	MELL: N/A		BORI	NG NO. WHF-2A-CF	10-T°
IENT: SOUTHNAVF	ACENGCOM					PROJ	ECT NO: RI PHASE	IIA
ONTRACTOR: Williams	Earth Science	e Inc. (WESI)		DATE STARTED: 1	0/12/92		COMPLTD: 10/17/	92
ETHOD: Cone Penoti	ometer	CASE SIZE: N/A		SCREEN INT.: N/	'A	PROTE	CTION LEVEL: D	
OC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 170FT		DPTH	TO ♀ 105 FT.	
GGED BY: WESI		WELL DEVELOPMENT	DATE: N/A			SITE:	WHITING FIELD	
L LABORATORY Z SAMPLE ID. W	RECOVERY HEADSPACE (ppm)		DESCRIPTIONS TOWNENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6IN	WELL DATA
	0.8/1.5	SAND: Grey, coarse to fin fine sand at 0.2.			• •	SW	32,34,28	
5 -	0.1/1.5	SAND: Light grey, fine to	medium.		76747	SP	39,50/6",	
<u>, </u>	0.3/1.5 0	Same as above, trace co	arse.		148484	SP	49,50/6",	
5—								
		. '						
5—]								
5—								
1								
5—]				. •				
170'								
5—]								
<u>, </u>								

	LUG	of WELL: N/A	<u> </u>	BORING NO. WHF-2A-CPT-02		
LIENT: SOUTHNAVFACENGCOM				PROJECT N	D: RI PHASE	IIA
ONTRACTOR: Williams Earth Science In	ic. (WESI)	DATE STARTED: 10	/12/92	COM	IPLTD: 10/19/	/92
ETHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A		PROTECTION	LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 178FT.		DPTH TO \$ 1	12 FT.	
OGGED BY: WESI	WELL DEVELOPMENT DATE: N	<u></u>		SITE: WHITI	NG FIELD	
SAMPLE OU BANGBAT TO THE ALL SAMPLE TO THE ALL S	SOIL/ROCK DESCRIF AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	DWS/6-IN	WELL DATA
Sal Sal Sal Sal Sal Sal Sal Sal Sal Sal	yey silt to silty clay. y sand to sandy silt. welly sand to sand.		Si Si Si Si Si Si Si Si	M/ML ML P/SM SP L/CL M/ML M/SP SP N/SP		
0— Sai	nd		g	SP P/SM		
5—————————————————————————————————————	nd to silty sand.			SP		
Grade	evelly sand to sand.		S	W/SP SP		

ritle: Naval Air Sta			LOG of	WELL: N/A		BORII	NG NO. WHF-2A-C	PT-01	
CLIENT: SOUTHNAVFA	CENGCOM					PROJE	CT NO: RI PHASE	IIA	
CONTRACTOR: Williams	Earth Science	Inc. (WESI)		DATE STARTED:	10/12/92	COMPLTD: 10/17/92			
4ETHOD: Cone Penotro	ometer	CASE SIZE: N/A		SCREEN INT.: N	/A	PROTE	CTION LEVEL: D		
TOC ELEV.: N/A FT.		MONITOR INST.: 0V	Δ .	TOT OPTH: 170FT.			TO ♀ 105 FT.		
OGGED BY: WESI		WELL DEVELOPMENT	DATE: N/A	1		SITE:	WHITING FIELD		
L LABORATORY W	RECOVERY HEADSPACE (ppm)		COMMENTS	ON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
-	S	and to silty sand.		- Line -	1//	SM/SP SP			
	s	and			7 7	SM/SP			
5—	s	and to silty sand.				3M/3F			
10—						SP			
15—									
20—									
25—	s	and							
30-									
35—									
40—	s	and to silty sand.			2, Z,	SM/SP SP			
45—									
50—	5	and							
55—	0	Gravelly sand to sand.				SW/SP			
]	9	Sand	4		• • •	SP SW/SP			
60		Gravelly sand to sand.			• • •	3,, 3,			

TLE: NAVAL AI	(312110)		0 1 1CLD	LOG of	WELL: N/A		BORIN	IG NO. WHF-2A-CI	PT-01
IENT: SOUTHNA	VFACENG	COM					PROJE	CT NO: RI PHASE	IIA
NTRACTOR: Will	iams Earth	Science	Inc. (WESI)		DATE STARTED:	10/12/92		COMPLTD: 10/17/	92
THOD: Cone Pe	notromete	r	CASE SIZE: N/A		SCREEN INT.: N	/A	PROTE	CTION LEVEL: D	
C ELEV.: N/A F	т.		MONITOR INST.: OVA	·	TOT OPTH: 170FT	•	DPTH 1	O ♀ 105 FT.	
GGED BY: WES	I	•	WELL DEVELOPMENT	DATE: N/A	\		SITE:	HITING FIELD	
LABORATORY SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	1 1	1 1				• • •	SW/SP		
]			Gravelly sand to sand.			• • •	SP		
]		5	Sand			• • •	SW/SP		
'						•••			
1						. • •			
_			Gravelly sand to sand.				ŀ		4
<u> </u>	11					• • •			
						• • •			
					,	• • •	İ		
]		9	Sand				SP		
1			Gravelly sand to sand.			• • •	SW/SP		
-			Sand				SP		
1			Gravelly sand to sand.				SW/SP SP		
_			Sand				SW/SP		
_			Gravelly sand to sand.			• • •	SP		
<u> </u>			Sand			7,7	SM/SP		
_		9	Sand to silty sand.				SP		
			Sand						
	0.2/1.	0 9	SAND: Grey, fine, trace gr	ravel.			SP	37,50/5",	
	0.5/1.	5 0 6	SAND: Grey, fine to mediu	m little co	arse sand and		SP	33,41,42	
]	0.0/1.	3 17	gravel.	,	arus varia ana			31,32,30	
]	0.071.	ا	N/A					• •	,
105'									•
1									
,									
-									
5—	0.8/1.		SAND: Grey, fine to mediu clayey fine sand lenses.	ım, little co	arse, dark red	Vey ex	SP	17,24,32	
1					•				
)						L	SW		

TLE: NAVAL AIR ST			LOG of W	ELL: N/A			IG NO. WHF-2A-C	
IENT: SOUTHNAVFA						PROJE	CT NO: RI PHASE	
ONTRACTOR: Williams	Earth Science I	nc. (WESI)	D	DATE STARTED: 10/12/92		COMPLTD: 10/19/92		/92
THOD: Cone Penotro	ometer	CASE SIZE: N/A	S	SCREEN INT.: N/A		PROTECTION LEVEL: D		
OC ELEV.: N/A FT.		MONITOR INST.: OVA	Т Т	OT OPTH: 178FT.		DPTH 1	(O ♀ 112 FT.	
GGED BY: WESI		WELL DEVELOPMENT	DATE: N/A			SITE: V	HITING FIELD	
L LABORATORY L SAMPLE ID. WA	RECOVERY HEADSPACE (ppm)		DESCRIPTION OMMENTS		ITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
7	Sa		1101111110			SP		
5_	Sa	nd to silty sand.				SP/SM		
	Sa	nd				SP		
_	Sa	nd to silty sand.				SP/SM		
b—] '	Sa	nd				SP SW/SP		
]	Gr	avelly sand to sand.				SP		
1	Sa	nd	•			İ		
5—	Gr	avelly sand to sand.			. • •	SW/SP SP		
1	Sa	nd			. • •	SW/SP		
,그	Gr	avelly sand to sand.						
´ -								
]					• • •			
5—					• • •			
1					• • •			
1					• • •			
머								
	Sa	and				SP SW/SP		
5—		avelly sand to sand.			• • •	J, O'		
1		•		-	• • •			
0-					• • •			
` <u> </u>						SP		
]		and						
5—	1 1 1	avelly sand to sand.				SW/SP SP/SM		
1	1 1 1	and to silty sand.			. • •	SW/SP		
_	1 1	avelly sand to sand.				SP		
0	}	and			• • •	SW/SP		
113 '	Gr	avelly sand to sand.			• • •			
4 1					• • •			
15—								
1				•				
					• • •			

	TING FIELD LOG of	WELL: N/A	BORING NO. WHF-2	A-CPT-02	
IENT: SOUTHNAVFACENGCOM			PROJECT NO: RI PH	IASE IIA	
NTRACTOR: Williams Earth Scie	nce Inc. (WESI)	DATE STARTED: 10/12/92	COMPLTD: 10/19/92		
THOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D		
C ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 178FT.	DPTH TO ¥ 112 FT.		
GGED BY: WESI	WELL DEVELOPMENT DATE: N/	A	SITE: WHITING FIE	.0	
RECOVERY HEADSPACE	SOIL/ROCK DESCRIPTS AND COMMENTS Continued from PAGE	THOE	SOIL CLASS BFO#246-I	Z WELL DATA	
	Gravelly sand to sand.		SW/SP		
6/18	SAND: Purple, white and tan, fine to clay at 140 ft. bls.	very fine, some	SP 27,35,42		
6/18	SAND: Light brown, very fine to med and silt.	lium, some clay	SP 47,50/4		
1					
5— 175'					

LE: NAVAL AIR ST	WITH MUTIT		L0G o	FWELL: N/A		BORII	NG NO. WHF-2A-C	PT-03
ENT: SOUTHNAVE	ACENGCOM					PROJECT NO: RI PHASE IIA		
NTRACTOR: Williams	Earth Science	e Inc. (WESI)		DATE STARTED:	10/13/92	COMPLTD: 10/26/92		
THOD: Cone Penoti	ometer	CASE SIZE: N/A		SCREEN INT.: N/A		PROTE	CTION LEVEL: 0	
C ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 183FT	•	DPTH	TO Y III FT.	
GED BY: WESI		WELL DEVELOPMENT	DATE: N	'A		SITE:	WHITING FIELD	
LABORATORY Z	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIP	rion	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-		Sandy silt to clayey silt.				ML		
7		Silty sand to sandy silt.				SM/ML		
_]		Sand to silty sand.				SP/SM		
]		Silty sand to sandy silt.			(//	SM/ML		
]		Sand to silty sand.				SP/SM		
]		Cond				SP		
		Sand						
-		Cravelly cand to cand				0:1/00		
	1 1 1	Gravelly sand to sand. Sand			• • •	SW/SP SP		
1	1 1 1	Gravelly sand to sand.				SW/SP SP		
1		Sand				3,		
7		Gravelly sand to sand.			27,27,27	SW/SP		
1	1 1	Sand			• • •	SP		
-	1 1 1	Gravelly sand to sand.		•	• • •	SW/SP		
]								
]					• • •			
]		0				SP		
1		Sand						
-]								
1								
-								
1								
_								
1								
1				•				
	, , ,				<u> </u>	SP/SM/	TAL SERVICES	

ITLE: NAVAL AIR STATION WHITING F	LOG	of WELL: N/A	BORI	NG NO. WHF-2A-CPT-03	
LIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: RI PHASE IIA	
ONTRACTOR: Williams Earth Science In	nc. (WESI)	DATE STARTED: 10/13/92		COMPLTD: 10/26/92	
IETHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTE	ECTION LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 183FT.	DPTH	TO ¥ III FT.	
OGGED BY: WESI	WELL DEVELOPMENT DATE:	N/A	SITE:	WHITING FIELD	
RECOVERY (ppm)	SOIL/ROCK DESCRI AND COMMENT Continued from	SYMI SYMI	SOIL CLASS	WELL DATA	
Sar Silt Sar Sar Sar Sar	nd to silty sand. y sand to sandy silt. nd to silty sand.		SP/SM SM/ML SP/SM SP	28,44,39	***************************************

<u> </u>		LOG of WELL: N/A		BORING NO. WHF-2A-CPT-03 PROJECT NO: RI PHASE IIA				
JENT: SOUTHNAVFACENGCOM				l				
ONTRACTOR: Williams Earth Science I	nc. (WESI)	DATE STA	DATE STARTED: 10/13/92		COMPLTD: 10/26/92			
THOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN I	NT.: N/A	PROTECTI	ON LEVEL: D			
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH	183FT.	DPTH TO	, 111 FT.			
DGGED BY: WESI	WELL DEVELOPMENT	DATE: N/A		SITE: WHI	TING FIELD			
SAMPLE SAMPLE COVERY HEADSPACE (PDm)	AND CO	DESCRIPTION DIMMENTS From PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA		
5 d/18 SA sa	AND: Light brown to white sturated. AND: Light brown to white sturated.	e, fine to very fine,		SP	33,48,41 43,50,54			
0—180' 180'								

TITLE: NAVAL AIR				LOG of	WELL: N/A		BORI	NG NO. WHF-2A-C	PT-04	
LIENT: SOUTHNAY			V-10-1		•		PROJ	ECT NO: RI PHASE		
ONTRACTOR: Willia			Inc. (WESI)		DATE STARTED: 10	0/14/92	COMPLTD: 10/28/92			
IETHOD: Cone Pen	tromete	r	CASE SIZE: N/A		SCREEN INT.: N/A			CTION LEVEL: 0		
OC ELEV.: N/A FT	•		MONITOR INST.: OVA		TOT DPTH: 180FT.	·	DPTH	TO \$ 125 FT.		
OGGED BY: WESI			WELL DEVELOPMENT	DATE: N/	Α.		SITE:	WHITING FIELD		
L LABORATORY E	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
			Sand to silty sand.				SP/SM SP			
]			Sand				SP/SM			
5—			Sand to sifty sand.							
]			Undefined				SM/ML			
_]			Silty sand to sandy silt.			144	SP			
0			Sand							
]										
5—]										
]										
			Sand to silty sand.				SP/SM			
]										
5—]										
]										
<u>-</u>										
~]							SP			
]			Sand							
5—]										
]										
,]										
0										
5—										
]		1 1	Sand to silty sand.				SP/SM			
_		1 1	Sand				SP/SM			
0		1 1	Sand to silty sand.				SP			
]			Sand							
55—		1 1	Sand to silty sand.		. •		SP/SM SP			
]			Sand				-			
<u>,</u> 1										
50-										
1										
₆₅	1 1									

TLE: NAVAL AIR ST	A I IUN WHI I II	NO FIELU	LOG of b	NELL: N/A		BORI	NG NO. WHF-2A-C	PT-04
ENT: SOUTHNAVE	ACENGCOM					PROJ	ECT NO: RI PHASE	IIA
NTRACTOR: Williams	Earth Science	e Inc. (WESI)		DATE STARTED: 10/14/92		COMPLTD: 10/28/92		3/92
THOD: Cone Penotr	ometer	CASE SIZE: N/A	!	SCREEN INT.: N/A		PROTECTION LEVEL: D		
C ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 180F	т.	DPTH	TO ♀ 125 FT.	
GGED BY: WESI		WELL DEVELOPMENT	DATE: N/A			SITE:	WHITING FIELD	
L LABORATORY W	RECOVERY HEADSPACE (ppm)		DESCRIPTIONMENTS from PAG	•	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Sand Sand Sand Sand Sand Sand San				SP SW/SP SP SW/SP SP SW/SP SP SW/SP	40,40,27	
128'				•				
)	1 1				L		50/6",-,-	

	ATION WHITING		LOG of	WELL: N/A		BORING NO. WHF-2A-CPT-04				
LIENT: SOUTHNAVFA							PROJECT NO: RI PHASE IIA			
ONTRACTOR: Williams				DATE STARTED: 10		COMPLTD: 10/28/92				
ETHOD: Cone Penotr	ometer	CASE SIZE: N/A		SCREEN INT.: N/A	\ 		CTION LEVEL: D			
OC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 180FT.			TO \$ 125 FT.			
DGGED BY: WESI				4		SITE:	WHITING FIELD			
LABORATORY U	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA		
		AND: Tan, very fine to me	edium, trac	ce medium white		SP	26,26,50/5"			
5—	q	uartz, wet.	•							
5—]										
5—										
							•			
5—										
0						-				
5—										
0										

TITLE: NAVAL AIR STATION WH		LOG of WELL: N/A		BORING NO. WHF-2A-CPT-05			
LIENT: SOUTHNAVFACENGCO	М			PROJECT NO: RI PHA	ASE IIA		
CONTRACTOR: Williams Earth Sc	cience Inc. (WESI)	DATE STARTED: 10/14/92		COMPLTD: 10/30/92			
(ETHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT	:: N/A I	PROTECTION LEVEL:	D		
TOC ELEY: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 1	95FT.	DPTH TO \$ 125 FT.			
OGGED BY: WESI	WELL DEVELOPMENT	DATE: N/A		SITE: WHITING FIELD	D		
	1 4	DESCRIPTION MMENTS		SOIL CLASS BLOWS/6-IV	WELL DATA		
-	Silty sand to sandy silt.		K. Z. Z.	M/ML SM			
]	Sandy silt to clayey silt.			M/ML			
5—	Silty sand to sandy silt.		Si	P/SM			
-	Sand to silty sand.						
10—							
~							
	City and to each eit		7 7 5	M (14)			
15—	Silty sand to sandy silt.		ZZ_{\perp}	M/ML ML			
_	Sandy silt to clayey silt. Sand to silty sand.		1/20/201/ Si	P/SM			
20—	1			CL			
	Clay						
_	Silty clay to clay.			CL			
25—	Sand			SP			
30—							
"]							
35—				1			
40—							
45—]							
_				SW/SP			
50—	Gravelly sand to sand.			SP			
~	Sand						
]							
55—]							
]							
60							
]		•					
65							

	LOG of	WELL: N/A	BURING NO.	WHF-2A-CPT-05	
LIENT: SOUTHNAVFACENGCOM): RI PHASE IIA	
ONTRACTOR: Williams Earth Science Ir	nc. (WESI)	DATE STARTED: 10/14/92	COM	PLTD: 10/30/92	
ETHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION	LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 195FT.	DPTH TO \$ 12	25 FT.	
DGGED BY: WESI	WELL DEVELOPMENT DATE: N/A	<u> </u>	SITE: WHITIN	IG FIELD	
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA	FHO!	SOIL CLASS	WELL DATA	
5—			SP		
	evelly sand to sand.		SW/SP		
5—					
5— 0— 3/18 SAI	ND: Light brown, fine to very fine	, trace silt.	SP 50)/3",-,-	
5—					1

	SOUTHNAVE			FIELD	LOG of WELL: N/A			BORING NO. WHF-2A-CPT-05 PROJECT NO: RI PHASE IIA			
				Inc. (WESI)	c. (WESI) DATE STARTED: 10/14/92				COMPLTD: 10/30		
HOD:	Cone Penot	romete	r	CASE SIZE: N/A		SCREEN INT.:	N/A	PROT	ECTION LEVEL: D		
ELE\	V.: N/A FT.			MONITOR INST.: 0V	A	TOT DPTH: 195F	т.	DPTH	TO ¥ 125 FT.		
GED (BY: WESI			WELL DEVELOPMENT	DATE: N/	Δ		SITE	: WHITING FIELD		
: LAB	ORATORY HE	RECOVERY	HEADSPACE (ppm)		K DESCRIPT COMMENTS from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6~IN	WELL DATA	
	185*										
						,					

			LOG of	WELL: N/A		BORII	NG NO. WHF-2A-C	PT-06	
LIENT: SOUTHNAVFA	CENGCOM					PROJE	ECT NO: RI PHASE	IIA	
ONTRACTOR: Williams	Earth Science	Inc. (WESI)		DATE STARTED: 10/15/92		COMPLTD: 10/31/92			
IETHOD: Cone Penotr	ometer	CASE SIZE: N/A		SCREEN INT.: N/A			PROTECTION LEVEL: D		
OC ELEV.: N/A FT.		MONITOR INST.: OVA		TOT DPTH: 175FT.		DPTH '	TO ♀ 130 FT.		
OGGED BY: WESI	-	WELL DEVELOPMENT	DATE: N/A	\		SITE:	WHITING FIELD		
L LABORATORY Z	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPTI OMMENTS	ОИ	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
=		iilty sand to sandy silt.				SM/ML SP/SM			
5—	s	Indefined iandy silt to clayey silt. iilty sand to sandy silt.			7,7	ML SM/ML SP/SM			
5—		and to silty sand Indefined							
		silty sand to sandy silt. Sand to silty sand.			/ ₂ / ₂ / ₂	SM/ML SP/SM SP			
		Sand Clay Gravelly sand to sand.			•••	CL SW/SP			
5—	5	Sand Gravelly sand to sand.			222	SP SW/SP ML CL			
		Sandy silt to clayey silt. Silty clay to clay. Clayey silt to silty clay.				ML/CL CL SM/ML			
5—	S	Silty clay to clay. Silty sand to sandy silty. Sandy silt to clayey silt.				ML ML/CL			
0	3	Clayey silt to silty clay. Sand				SP SW/SP			
5—		Gravelly sand to sand.							
0-1		Sand				SP			
55—		Gravelly sand to sand.				SW/SP SP			
30				-		J .			

LENT: SOUTHANFACENCOM MONTRACTOR Williams Earth Science Inc. (MESI) DATE STARTED: 10/16/92 ETHOD: Cone Penovorenter CASE SIZE: N/A SCREEN INT.: N/A PROTECTION LEVEL: 0 CELEY. N/A.FT. MONTROR INST.: OVA TOT DPTH: 175FT. DPTH: TO \$ 130 FT. STE: WHITING FIELD SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I L LABORATORY & STEE WHITING FIELD SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF PAGE I SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF THE PAGE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF THE PAGE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF THE PAGE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF THE PAGE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S CONTINUED IT OF THE PAGE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESCRIPTION AND COMERN'S SAMPLE ID. 8 SOIL/ROCK GESC	NTRACTOR Williams Earth Science Inc. (WES) DATE STARTED: 10/15/92 COMPLTD: 10/31/92 CHECK INT. SCREEN INT.: N/A ROSTORIUS INT.: N/A	ITLE: NAVAL AIR STATION	WHITING F	TELD	LOG of	WELL: N/A		BORI	NG NO. WHF-2A-C	PT-06
ETHOD: Cone Penotrometer CASE SIZE: N/A SCREEN INT.: N/A PROTECTION LEVEL: D DC ELEV.: N/A FT. MONITOR INST.: DVA TOT OPTH: 175FT. DPH 10 \$ 130 FT. SITE: WHITING FIELD SOUL/ROCK DESCRIPTION AND CONHENTS Continued from PAGE I SP Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. SP SP SP SP SP SP SP SP SP S	THOR: Cone Penotrometer CASE SIZE: N/A CELEY: N/A FT. MONITOR INST: DVA TOT DPTH: 1/2FT. DPTH TO \$ 130 FT. SITE: HHITING FIELD SOIL/ROCK DESCRIPTION AND COMMENTS COntinued from PAGE 1 SAMPLE ID \$ 50 BLOKS/8-IN SAMPLE ID \$ 50 BL	IENT: SOUTHNAVFACENGO	СОМ					PROJ	ECT NO: RI PHASE	IIA
DOCELEY: N/A FT. MONITOR INST: OVA DOCED BY: NESI WELL DEVELOPMENT DATE: N/A SITE: HHITING FIELD SOIL/ROCK DESCRIPTION AND COMMENTS CONTINUED from PAGE 1 Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand.	MONITOR INST:: OVA TOT DPTH: 17SFT. DPTH TO \$ 130 FT. WELL DEVELOPMENT DATE: N/A L. LABORATORY # SECURITION AND CONNENTS COntinued from PAGE 1 Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand.	ONTRACTOR: Williams Earth	Science In	c. (WESI)		DATE STARTED: 1	0/15/92		COMPLTD: 10/31,	/92
Sand Sand Sand Sand Sand Sand Sand Sand	SITE: WHITING FIELD LABORATORY SOLVENOR DESCRIPTION AND CONNENTS SAMPLE ID. 50 SOLVEDOR DESCRIPTION AND CONNENTS CONTINUED from PAGE 1 SP Gravelly sand to sand. Sand Gravelly sand to sand. Sand Sp Sand Sand Sand Sand Sand Sand Sand Sand	ETHOD: Cone Penotrometer		CASE SIZE: N/A		SCREEN INT.: N/	A	PROTE	CTION LEVEL: D	
Sand Sand Sand Sand Sand Sand Sand Sand	Li Labonatory William South Francisco Description AND COMMENTS Continued from PAGE I SP SP SP SP SP SP SP SP SP SP SP SP SP	OC ELEV.: N/A FT.	,	MONITOR INST.: OVA		TOT DPTH: 175FT.		DPTH	TO ¥ 130 FT.	
Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Sand Sand Sand Sand Sand Sand San	Sand Gravelly sand to sand. SP SW/SP Sand Gravelly sand to sand. Sand Sand Sand Sand Sand Sand Sand San	OGGED BY: WESI		WELL DEVELOPMENT	DATE: N/	Α .		SITE:	WHITING FIELD	
Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Sand Sand Sand Sand Sand Sand San	Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Sand Sand Sand Sand Sand Sand San	L' L'ABORATORY L' L' SAMPLE ID. S	(ppm)	AND C	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6~IN	WELL DATA
			San Grav San San San Grav	d velly sand to sand. d velly sand to sand. d d to silty sand. d. velly sand to sand.	from PA	GE 1		SP SW/SP SW/SP SP SP/SM SP SW/SP		**

		NG FIELD	LOG of WELL: N/A		BORII	NG NO. WHF-2A-C	PT-06
ENT: SOUTHNAVE	ACENGCOM				PROJE	ECT NO: RI PHASE	IIA
NTRACTOR: William	s Earth Science	e Inc. (WESI)	DATE STAR	TED: 10/15/92		COMPLTD: 10/31	/92
THOD: Cone Penot	rometer	CASE SIZE: N/A	SCREEN IN	T.: N/A	PROTE	CTION LEVEL: D	
C ELEV.: N/A FT.		MONITOR INST.: OVA	TOT DPTH:	175FT.	DPTH '	TO ¥ 130 FT.	
GGED BY: WESI	1	WELL DEVELOPMENT	DATE: N/A		SITE:	WHITING FIELD	
L LABORATORY T	RECOVERY HEADSPACE (ppm)	AND C	DESCRIPTION OMMENTS from PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
		CLAY: Grey with red-oran fine sand.	ge mottling, dry, trace	very	CL	16,25,33-	
- 133'		SILTY SAND: Grey, very f saturated.	ine to fine, wet to	1., 1.,	SM	42,50/5",-	
						-	
1							
-							
175'				·			

ITLE: NAVAL AIR STATIO	VA MUT+1	NO FILLE	LOG o	F WELL: N/A		BORIN	NG NO. WHF-2A-CI	PT-07
LIENT: SOUTHNAVFACEN	GCOM					PROJE	CT NO: RI PHASE	IIA
ONTRACTOR: Williams Ear	th Science	ce Inc. (WESI)		DATE STARTED:	10/16/92		COMPLTD: 11/01/	92
IETHOD: Cone Penotromet	er	CASE SIZE: N/A		SCREEN INT.: N/	/A	PROTE	CTION LEVEL: D	
OC ELEV.: N/A FT.		MONITOR INST.: 0V	4	TOT DPTH: 185FT	•	DPTH '	TO ♀ 130 FT.	
OGGED BY: WESI	<u> </u>	WELL DEVELOPMENT	DATE: N	/A	-	SITE:	WHITING FIELD	
SAMPLE ID. SAMPLE SOVERY	HEADSPACE (ppm)		(DESCRIP'	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 10— 15— 20— 25— 30— 35— 40— 45— 50— 60—		Sand to silty sand. Sand Sand to silty sand. Silty sand to sandy silt. Sand Sand to silty sand. Silty clay to clay. Clay Very stiff, fine grained s Undefined Clayey silt to silty clay. Clay Undefined Clayey silt to silty clay. Sand to silty sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand silty sand. Sand silty sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Sand Gravelly sand to sand. Silty sand to sandy silt. Sany silt to clayey silt. Clayey silt to silty clay. Sand to silty sand.				SP/SM SP SP/SM CL SP ML/CL CL ML/CL SP/SM SP SW/SP SP SW/SP SP/SM ML SP SW/SP SP/SM ML SP SW/SP SP/SM ML SP SW/SP SP/SM ML SP SW/SP SP/SM ML SP SW/SP		

TITLE: NAVAL AIR STATION WHITING F	ro ro	G of WELL: N/A	BOR:	ING NO. WHF-2A-C	PT-07
CLIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: RI PHASE	IIA
CONTRACTOR: Williams Earth Science In	c. (WESI)	DATE STARTED: 10/16	/92	COMPLTD: 11/01/	92
METHOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROT	ECTION LEVEL: D	
TOC ELEV.: N/A FT.	MONITOR INST.: 0VA	TOT DPTH: 185FT.	DPTH	TO ♀ 130 FT.	
LOGGED BY: WESI	WELL DEVELOPMENT DATE	: N/A	SITE	WHITING FIELD	
DEPTH FIT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCI AND COMMEN Continued from	RIPTION STATES TO SERVICE TO SERV	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
San San San San San San San Graves San Grave	d d to silty sand. d velly sand to sand.	が (注) (注) (注) (注) (注) (注) (注) (注)	SP/SM SP SW/SP SSP/SM SW/SP SW/SP		¥
125—					
130 130	PAGE 2 of	CPTO7 ABB ENV	/IRONMEN	TAL SERVICES	. INC.

TLE: NAVAL AIR STATION WHITI	LOG	of WELL: N/A	BORING NO. WHF-2A-CPT-07	
IENT: SOUTHNAVFACENGCOM	7 (1501)	Tare at a to 40 400	PROJECT NO: RI PHASE IIA	_
NTRACTOR: Williams Earth Science		DATE STARTED: 10/16/92	COMPLTD: 11/01/92	
THOD: Cone Penotrometer	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D	
OC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT OPTH: 185FT.	DPTH TO ♀ 130 FT.	
GGED BY: WESI	WELL DEVELOPMENT DATE: N		SITE: WHITING FIELD	
FT. OI STANDE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from P.	S E E	SOIL CLASS BOTO CLASS BOTO CLASS BOTO CLASS BOTO CLASS BOTO CLASS	
5—1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
5 185'				
<u></u>		-		

APPENDIX E

RI UNDERGROUND STORAGE TANK (UST) MONITORING WELL LITHOLOGIC DESCRIPTIONS

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-1	BORI	NG NO. SFF-SB-29	9
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 1/26/92	2	COMPLTD: 1/26/	92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 120-135 F	T PROTE	CTION LEVEL: D	
TOC ELEY.: 177.79 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.	DPTH	TO \$ FT.	
LOGGED BY: C. King	WELL DEVELOPMENT DATE:		SITE:	1466, South Fuel F	arm
DEPTH FT. FT. OI STANDES SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
	LAYEY SAND: Red, coarse- to ver ome silt.	y-coarse grained,	- sc	5,5,7,5	
10 - 1.0/2 0.0				5,6,5,5	
15 - 3.0				5,6,8,8	
_	LAYEY SAND: Red to light red, me parse-grained, some silt.	dium- to very	- sc	5,5,7,9	
	AND: Gray, red, and white banded It, medium- to coarse-grained.	, some clay and	- SC	7,7,11,12	
1.5/2				7,10,10,10	
0.0				9,15,17,17	
	AND: Light gray with some red bar oarse-grained.	nds, medium- to		10,20,22,20	
	AND: Light gray and pink banded, o coarse– grained.	some silt, medium-	. 1	6,8,8,10	
50 - 1.3/2 0.0				6,7,7,10	
55 0.0				8,10,10,8	

TITLE: NAS Whi	iting Field			LOG of	WELL: WHF-1466-1		BORIN	NG NO. SFF-SB-2	9
CLIENT: SOUTH	INAVFACENG	СОМ					PROJE	CT NO: 7518-40	
CONTRACTOR: (Groundwater	Protect	ion Inc.		DATE STARTED: 1	/26/92		COMPLTD: 1/26/	92
METHOD: 4.25"	HSA		CASE SIZE: 4 inches	5	SCREEN INT.: 120	-135 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 177	.79 FT.		MONITOR INST.: OVA		TOT DPTH: 135FT.	<u>-</u>	DPTH 1	TOŞ FT.	
LOGGED BY: C	. King		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
LABORATO	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
60	1.0/2	0.0	SAND: Light gray and pink coarse-grained, some mic	a.		• • •	SW	Wt.of Rod 16,18,18,16	
70	1.5/2	0.0	SAND: Same as above wit	n some qu	artz peddies.	• • •	SW	Wt.of Rod	
75—	1.8/2	0.0	SAND: Same as above no	quartz pe	bbles.	• • •	SW	16,16,17,16	
30-	0.8/2		SAND: Same as above wit	h some mid	ca.	• • •	SW	8,10,12,15 Wt.of Rod	
85— - - - -	1.0/2								
90-	1.7/2							20,25,30,32	
95—	1.0/2		SAND: Light gray, brown a to very coarse- grained,			• • •	SW	23,24,23,24	
00-	1.0/2	1.0	SAND: Light gray, medium silt, damp.	- to coars	se-grained, some	• • •	SW	17,22,23,22	
05—	1.7/2	2.0	SAND: Pink, light gray and coarse-grained, some mid		anded, medium- to	• • •	SW	Wt. of Rod	
110	1	1.1.0						18,20,20,19	

TLE: NAS Whiting Field	L	OG of WELL: WHF-1466-	1	BORI	NG NO. SFF-S8-2	9
IENT: SOUTHNAVFACENGCOM	1			PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Pro	tection Inc.	DATE STARTED:	1/26/92		COMPLTD: 1/26/	92
THOD; 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 12	0-135 FT	PROTE	ECTION LEVEL: D	
OC ELEV.: 177.79 FT.	MONITOR INST.: 0VA	TOT DPTH: 135FT	•	DPTH	TO ♀ FT.	
OGGED BY: C. King	WELL DEVELOPMENT DAT	E:		SITE:	1466, South Fuel F	arm
SAMPLE SAMPLE FIT SAMPLE FIT SAMPLE HEADSPACE	SOIL/ROCK DES	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.5/2						7
5 - 1.5/2	SAND: Gray, light brown, reddi medium-grained, some mica, da			SP	28,30,38,40	
0 1.8/2	SAND: Light brown, medium- to mica, damp.	o coarse-grained, some	• • •	SW	30,38,40,43	
	SAND: Same as above, wet.		•••	SW	30,35	
5						
5—						
5_						

TITLE: NAS Whiting Field	LOG o	f WELL: WHF-1466-10) -	BORI	NG NO. SFF-SB-49	9
LIENT: SOUTHNAYFACENGCOM				PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 5	/12/92		COMPLTD: 5/12/9	92
METHOD: Mud Rotary	CASE SIZE: 4&8 inches	SCREEN INT.: 153	-158 FT	PROTI	ECTION LEVEL: C.D	
TOC ELEV.: 191.24 FT.	MONITOR INST.: OVA	TOT DPTH: 163FT.		DPTH	TO \$ FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE:	1466, South Fuel F	arm
CECOVERY HEADSPACE (DDM)	SOIL/ROCK DESCRIP AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—————————————————————————————————————	.AY: Brown, stiff.			CL	POSTHOLE 6,7,7,8	21212121
	_AY: Brown to red to buff, stiff.			CL	8,10,12,12	2"2"2"2"2
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	AND: Brown to pink to yellow to wedium-grained.	white, fine- to		SP	8,12,13,14	"
	AND: Pale yellow to buff to white predium-grained.	to tan, very fine-	• • •	SW	12,15,19,22	Z" Z" Z".
25 1.2/2 0.0 S	AND: White to buff, very fine- to	medium-grained.	• • •	SW	6,5,8,12	1 4 4 4
	ANDY CLAY: Brown to yellow to be medium-grained	ouff to white, fine-		SC	18,24,26,30	
	ANDY CLAY: Buff to tan to yellowery fine— to medium—grained.	w to rose to white,		SC	16,18,24,29	
	AND: Tan to buff to rose, very fi edium-grained, silty.	ine- to	• • •	SW	20,18,15,15	
45 0.0					15,16,16,17	121212
50					18,26,29,32	
55	PAGE 1 of 14	466-1D ABB	ENVIRO	SC NMEN	TAL SERVICES	INC.

TITLE: NAS Whitin	g Field		L	OG of WELL: WHF-14	66-1D	BORII	NG NO. SFF-SB-4	19
CLIENT: SOUTHNA	VFACENG	СОМ				PROJ	ECT NO: 7518-40	
CONTRACTOR: Gro	oundwater	Protecti	ion Inc.	DATE START	ED: 5/12/92		COMPLTD: 5/12/	92
METHOD: Mud Rota	ary		CASE SIZE: 4&8 inches	SCREEN INT.	: 153-158 FT	PROTE	CTION LEVEL: C.)
TOC ELEV.: 191.24	FT.		MONITOR INST.: OVA	TOT DPTH: 16	3FT.	DPTH	TO ♀ FT.	
LOGGED BY: N. P.	agano		WELL DEVELOPMENT DAT	E:		SITE:	1466, South Fuel I	arı
LABORATORY SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	AND COMME	NTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	
	1.8/2		SANDY CLAY: Brown to yellow to medium-grained.	to rose to buff, fine	-	SC	20,22,28,30	
60	1.7/2		SAND: Peach to rose to buff t medium-grained, silty.	each to rose to buff to white, fine- to			18,22,25,25	
65—	1.7/2	0.0					15,13,15,16	
70—	1.8/2	1 10 1	SAND: Buff to white to rose, fi coarse-grained.	ne- to	• • •	SW	12,15,18,20	
75—	1.8/2	1401	SAND: Buff to white to rose, fi coarse-grained, some gravel.	ne- to	• • •	SW	18,20,22,27	
80—	1.6/2	2.0					32,32,32,32	
85—	1.6/2	11.0	SAND: Buff to white, fine- to I	nedium-grained, silt	y	SP	29,32,33,33	
90-	1.6/2		SAND: Rose to pink to buff to medium-grained, some gravel.	white, fine- to	• • •	SW	23,25,30,30	
95—	1.0/2	5.0					Wt. of Rod	
00-	1.0/2	20.0					35,37	
05—	10/2		SAND: Orange to buff to white medium-grained, damp.	, fine- to		SP	50,REF	

ITLE: NAS Whiting Field	L06 of	f WELL: WHF-1466-1D	В	ORING NO. SFF-SB-49	
LIENT: SOUTHNAVFACENGCOM	·		P	ROJECT NO: 7518-40	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/12.	/92	COMPLTD: 5/12/92	<u>}</u>
ETHOD: Mud Rotary	CASE SIZE: 4&8 inches	SCREEN INT.: 153-15	8 FT PR	OTECTION LEVEL: C,D	
OC ELEV.: 191.24 FT.	MONITOR INST.: OVA	TOT OPTH: 163FT.	. DF	TH TO \$ FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SI	TE: 1466, South Fuel Fa	rm
SAMPLE SAMPLE THE ADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION	SYMBOL SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
7 1 SA	ND: Buff to white to rose, fine-dium-grained.		SP	39,40,42,42	
15— 1.0/2 110.0				49.REF	
	ND: Rose to white to buff, fine- arse-grained.	· ·	• • Sh	28,42,39,46	
1	ND: White, fine- to coarse-grain or detected.		• • Si	33,42,50,REF	
2.0/2 N/A CL	AY: Stiff, fine- to medium-graine	ed.	CL	Wt. of Rod	
	NDY CLAY: Gold to brown to buf dium-grained.	f to white, fine- to	so	Wt. of Rod	
	NDY CLAY: Buff to rose to gold, edium-grained.	, fine- to	s	23,20	
	AY: Yellow to brown to red to ta edium-grained.	an, stiff, fine- to	:=== CI	Wt. of Rod	
2.0/2 2.0 CL	AY: Fine- to medium-grained.		CI	H 50	
	NND: Grayish orange to dark yell- ne-grained, clay lens, well-sorte		s	P	
60—					
65	,				

TLE: NAS, Whiting F	ield		LO	G of V	NELL: WHF-1466-2			NG NO. SFF-SB-52	
IENT: SOUTHNAVF	ACENGO	ЮМ					PROJ	ECT NO: 7518-40	
NTRACTOR: Ground	lwater P	rotect	on Inc.	1	DATE STARTED: 3	/14/92	COMPLTD: 3/14/92		
THOD: 4.25" HSA			CASE SIZE: 4 inches	SCREEN INT.: 105-120 FT			PROT	ECTION LEVEL: D	
C ELEV.: 180.72 F1	•		MONITOR INST.: OVA		TOT DPTH: 120FT.		DPTH	TO ♀ 109 FT.	
GGED BY: N. Paga	no	-	WELL DEVELOPMENT DATE	E :			SITE	1466, South Fuel F	arm
L LABORATORY A SAMPLE ID. W	SAMPE TOO (POINT) COOK RECOOK TO STAND				ON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
								POSTHOLE	
5-]	1.0/2	0.0	CLAYEY SAND: Brick red, fine-	to me	edium-grained.		sc	1,1,2,4	
	1.5/2	0.0						7,8,10,12	
5—	1.8/2	0.0	SAND: Red to tan, fine- to med clay.	dium−ç	grained, trace	==	SC	9,9,12,12	
o	2.0/2	0.0	CLAYEY SAND: Red to buff, me SAND: Red to buff, fine- to me				SC	6,8,10,10	
5—	1.8/2	0.0	SAND: White, fine- to medium-	graine	ed, well-graded.	• • •	SW	14,14,14,14	
0-1	2.0/2	0.0						8,14,20,24	
95—	2.0/2	0.0						12,16,16,18	
10—	2.0/2	0.0	SAND: White, fine-grained, wel	II-sort	ted.		SP	18,22,24,24	
45—	2.0/2	0.0	SILTY CLAY: Tan to rose to b	orown.			CL	40,REF	
50—	1.8/2	0.0	SAND: Tan to rose to brown, well-sorted.	very f	fine-grained,		SP	30,35,35,37	N

'ITLE: NAS Whiting Field		LO	G of WELL: WHF-1466-	-2	BORI	NG NO. SFF-SB-5	2
LIENT: SOUTHNAVFACENG	COM		,		PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater	Protection	on Inc.	DATE STARTED:	3/14/92		COMPLTD: 3/14/	92
ETHOD: 4.25" HSA		CASE SIZE: 4 inches	SCREEN INT.: 10	05-120 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 180.72 FT.		MONITOR INST.: OVA	TOT DPTH: 120F	т.	DPTH	TO ♀ 109 FT.	
.0GGED BY: N. Pagano		WELL DEVELOPMENT DATE	:		SITE:	1466, South Fuel F	arm
L LABORATORY L L LABORATORY L L L LABORATORY L L L L L L L L L L L L L L L L L L L	HEADSPACE (ppm)	SOIL/ROCK DESC AND COMMEN Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.8/2		SAND: Tan to red, fine-grained	l, well-sorted.			12,12,12,14	
1.8/2	1.0					26,30,30,30	
1.6/2	2.0					10,10,12,18	
1.6/2	0.0	SAND: White, medium-grained, w	vell-sorted.		SP	18,22,24,26	
75 - 1.5/2	0.0					12,15,15,15	
1.5/2	2.0	SAND: White to pink, fine- to m	edium-grained.		SP	20,15,15,13	
35—	0.0	SAND: Gold, medium-grained, w SAND: Buff to red to gold, fine well-graded.			SP	40,50,REF	
1.5/2	0.0	SAND: Buff, fine— to medium—gi	rained.		SP	35,45,REF	
95	0.0	SAND: Red to rose, very fine-	to medium-grained.		SP	48,50,REF	
00-	3.0	SAND: Red to gold, fine- to me	edium-grained.		SP	REF	
05	1.0	SAND: Buff to rose, fine- to m	edium-grained, damp.		SP	50,REF	

TITLE: NAS Whiting Field	LOG	3 of WELL: WHF-1466-2	BORI	NG NO. SFF-SB-5	2
CLIENT: SOUTHNAVFACENGCOM			PRO	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protec	tion Inc.	DATE STARTED: 3/14	1/92	COMPLTD: 3/14/	92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 105-1	20 FT PROT	ECTION LEVEL: D	
TOC ELEV.: 180.72 FT.	MONITOR INST.: OVA	TOT DPTH: 120FT.	DPTH	TO \$ 109 FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE	:	SITE	1466, South Fuel F	arm
DGPTH F. T. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	soil/Rock descr AND COMMEN Continued from	RIPTION ITS PAGE 2	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
2.0/2 0.0	SAND: Buff to gold to rose, fine saturated.	}·	• • SW	0,0,0,22	
115 2.0/2 0.0	SAND: Buff to red to rose, very medium-grained, trace silt, satur		SM	Wt. of Rod	
20	SAND: Rose to tan, fine- to coasaturated.		• • SW	Wt. of Rod	
25—					
30—					
35—					
40—					
45—					
50					
55—					
60—					
65	PAGE 3 of	f 1466-2 ADD 5	NVIDONIMEN	TAL SERVICES	: INC

TITLE: NAS W	niting Fi	eld			LOG o	F WELL. WHF-1466	-2D	BORI	NG NO. SFF-SB-4	7
CLIENT: SOUT	HNAVFA	CENGO	СОМ					PROJ	ECT NO: 7518-40	
CONTRACTOR:	Groundi	water F	rotec	tion Inc.		DATE STARTED	: 5/10/92	COMPLTD: 5/10/92		
METHOD: Mud I	Rotary			CASE SIZE: 488 inch	nes	SCREEN INT.: 1	39-144 FT	PROTE	ECTION LEVEL: D	
TOC ELEV.: 190	0.03 FT.	•		MONITOR INST.: OVA		TOT DPTH: 144F	т	DPTH	ТО ∑ 101 ГТ.	
OGGED BY:	J. Koch			WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
L LABORATO	DONA JIOS SAMPLE SONT SONT SONT SONT SONT SONT SONT SONT					FION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			`	,					POSTHOLE	
5—		1.0/2	0.0	CLAYEY SAND: Red to gol	d, fine-g	rained.		sc	6,12,13,18	
0—		1.2/2	0.0	SAND: Red to tan, trace o	clay.			SC	6,12,12,15	
5		1.5/2	0.0	SAND: Red to tan, medium	-grained,	well-sorted.		SP	7,8,8,9	
) 	7	1.0/2	0.0	SAND: Red to brown, fine-well-graded.	- to coar	se-grained,	• • •	SW	8,10,12,12	
5—		1.8/2	0.0	SAND: Red, very fine-gra CLAY: Brown, trace silt.	ined to si	It.		CL	5,6,6,9	
)		1.3/2	0.0	'SAND: Tan, medium-graine	ed, well-s	orted.		SP	7,7,10,12	
5		1.5/2	0.0	SAND: White, medium-grain	ned, weil-	sorted.		SP	6,8,11,14	
0		1.8/2	1.0	SAND: White, very fine- to	a fine-gr	ained.		SP	9,12,12,18	
5—		1.8/2	1.0						6,9,9,12	
50-		1.0/2	0.0	CLAY: Pink, silty.				CL	9,10,12,15	
55—				PAGE	1 of 14	66-2D ABI	B ENVIRO	SP /	TAL SERVICES	. INC

TITLE: NAS Whiting Field			LOG of	WELL: WHF-1466-	-3	BORI	NG NO. SFF-SB-4	8	
CLIENT: SOUTHNAVFACENGCO	M					PROJ	ECT NO: 7518-40		
CONTRACTOR: Groundwater Pro	otection	Inc.		DATE STARTED:	3/15/92	COMPLTD: 3/15/92			
METHOD: 4.25" HSA		CASE SIZE: 4 inches	s	SCREEN INT.: 13	30-145 FT	PROT	ECTION LEVEL: 0		
TOC ELEV.: 197.42 FT.		MONITOR INST.: OVA	1	TOT DPTH: 145F	T. DPTH TO \$ 140 FT.				
LOGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm	
DEPTH TIT THE SAMPLE SAMPLE COVERY	HEAUSPACE (ppm)	SOIL/ROCK AND C	CDESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
							POSTHOLE		
1							103111022		
5——————————————————————————————————————	0.0 SA	ND: Brown to light brow	√n, fine-gi	ained.		SP			
<u> </u>					1				
10-		AVEV CAND. D	4mm 4m 5: *	f finn- to					
	n n i	AYEY SAND: Brown to dium-grained.	tan to Duf	i, iine- to		SC			
15	CL	AYEY SAND: Red-brow	ın to tan t	o yellow, fine- to		sc			
1.6/2	$\Lambda \Lambda I$	dium-grained.							
-									
20 1.3/2	$\alpha \alpha I$	AY: White to tan to bro	own to rose	e, fine- to		sc			
-	me	dium-grained, stiff.							
25	00	NDY CLAY: White to budium-grained.	iff to tan	to rose, fine- to		sc			
	-								
30									
2.0/2	0.0						et.		
_									
35		ND: White to buff to b	rown, fine-	- to		SW			
-	CO CO	arse-grained.			• • •				
1.5/2	0.0	ND: White to brown, fir	ne- to med	dium-grained.		SP			
45	. 9/	ND: White to buff to p	ink, fine-	lo		SP			
		edium-grained.	, 1016	•		ər			
							*		
50	0.0								
1.7/2	0.0								
1									
55—	1				L	SP	†	للتا	

TITLE: NAS Whiting	Field			LOG of	WELL: WHF-1466	6-3	BORI	NG NO. SFF-SB-4	В	
CLIENT: SOUTHNA	VFACENGCO)M					PROJ	ECT NO: 7518-40		
CONTRACTOR: Gro			Inc.		DATE STARTED): 3/15/92	COMPLTD: 3/15/92			
METHOD: 4.25" HS	A		CASE SIZE: 4 inches	SCREEN INT.: 130-145 FT			PROTECTION LEVEL: D			
TOC ELEV.: 197.42	FT.		MONITOR INST.: OVA		TOT DPTH: 145	FT.	DPTH	TO ♀ 140 FT.		
LOGGED BY: N. Pa			WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm	
E LABORATORY	SAMPLE	HEAUSTACE (ppm)	SOIL/ROCK AND CO	MMENTS		SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
]		00 S/	AND: White to buff to pinledium-grained.				SP			
60—	1.3/2	^ ^ 1	AND: Rose to brown to be edium-grained.	uff, fine-	to		SP			
65—	1.2/2	0.0 s	AND: White to buff, fine-	to mediu	m-grained.		SP			
70—	1.1/2	0.0 S	AND: White to buff, fine-	to mediu	m-grained.		SP			
75—	1.8/2	0.0 s	AND: White to buff, fine-	to mediu	m-grained.		SP			
80	1.0/2	0.0								
85—	1.6/2	\sim \sim \sim	AND: White to buff to tar edium-grained, trace cla		fine- to		SP			
90	1.3/2		AND: Buff to rose to white oarse-grained.	te, fine-	to	• • •	SW		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
95	1.3/2		AND: Pink to yellow to ta oarse-grained with some		f, fine- to	• • •	SW			
100-	1.5/2		AND: Tan to buff to yello edium-grained.	ow to pin	k, fine- to		SP		" " " "	
105-	1.3/2	10 1	AND: Yellow to brown to oarse-grained.	tan to b	uff, fine- to	• • •	SW			
110							\ SP /	,		

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-2D	BORIN	NG NO. SFF-SB-4	7 .
CLIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/10/92		COMPLTD: 5/10/	92
METHOD: Mud Rotary	CASE SIZE: 468 inches	SCREEN INT.: 139-144 FT	PROTE	CTION LEVEL: D	
TOC ELEY:: 190.03 FT.	MONITOR INST.: OVA	TOT DPTH: 144FT.	DPTH 1	TO ♀ 101 FT.	
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE:		SITE:	1466, South Fuel f	arm
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOU W	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.5/2 2.0	ND: White, very fine- to fine-gra		SP	8,10,11,12	\$ 1 E
80 1.5/2 3.0				12,17,22,25	
65 1.5/2 5.0 \$4	ND: White, very fine- to medium-	grained.	SP	15,19,26,30	1 4 6 6
	ND: White, very fine- to coarse- artz pebbles.	grained with some	SW	15,22,24,18	1 2 2 2
75————————————————————————————————————	ND: Buff, fine- to medium-graine	d.	SP	15,18,20,20	
80-				24,30,35	
85— 2.0/2 33.0				26,30,34	
90 - 1.5/2 42.0 S/	ND: Buff, medium- to coarse-gra	ined.	SW	30,32,40	
95————————————————————————————————————	ND: Buff to gold, fine- to medium	grained.	SP	36,40	
100 1.5/2 50.0 5/	.ND: Buff, fine- to medium-graine	d.	SP	45,50,REF	
1.0/2 80.0				50,REF	
110-			\ SW /		

ITLE: NAS Whiting Field			LOG of	WELL: WHF-1466-	20	BORI	NG NO. SFF-SB-4	17
LIENT: SOUTHNAVFACENGO	ОМ					PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater P	rotectio	n Inc.		DATE STARTED:	5/10/92		COMPLTD: 5/10/	/92
ETHOD: Mud Rotary		CASE SIZE: 488 inch	nes	SCREEN INT.: 13	9-144 FT	PROT	ECTION LEVEL: D	
OC ELEV.: 190.03 FT.		MONITOR INST.: OVA		TOT OPTH: 144FT	ſ .	DPTH	TO ♀ 101 FT.	
OGGED BY: J. Koch		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel I	Farm
L LABORATORY W SAMPLE ID. W SAMPLE ID. W SW	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20 A S	AND: Brown to red, meditorse—grained, angular.	um- to ver	ry	• • •	SW	29,30,32	
5 - 1.0/2		AND: Very fine- to medi ub-rounded quartz pebb		d with 5-20 mm	• • •	SW	48,REF	
0 1.2/2	3.0 C	LAYEY SAND: Red, mediu	um-graine	d.		SP	Wt. of Rod	"
5——————————————————————————————————————	3.0 s	ILTY CLAY: Rose and gr	ay.			CL	8,8,9,8	2 2 2 2 2
0 - 2.0/2	o.o C	LAY: Rose and gray, știf	f, silty.			CL	8, 15, 15, 15	
5 2.0/2	2.0 C	LAY: Gold to tan to red,	very stiff			CL	28,37	
0 - 2.0/2	4.0 S	AND: Brown, fine- to me	dium-grair	ned, saturated.		SP	8,12	
5 2.0/2		AND: Red-brown, fine- ell-sorted, trace heavy				SP		
o—								
55—								
0—							9. 9.	
5								

1100.11.0	Whiting F	ieiu .		LO	G of WELL: WHF-1466-	-3	BORI	NG NO. SFF-SB-4	8
LIENT: SO	JTHNAVF	ACENGO	СОМ				PROJ	ECT NO: 7518-40	
ONTRACTO	R: Groun	dwater f	rotec	tion Inc.	DATE STARTED:	3/15/92		COMPLTD: 3/15/	92
ETHOD: 4.2	25" HSA			CASE SIZE: 4 inches	SCREEN INT.: 13	30-145 FT	PROTI	ECTION LEVEL: D	
OC ELEV.:	197.42 F	т.		MONITOR INST.: OVA	TOT DPTH: 145F	г.	OPTH	TO ¥ 140 FT.	
OGGED BY:	N. Paga	eno		WELL DEVELOPMENT DATE	•	-	SITE:	1466, South Fuel F	arm
LABORA SAMPL	=	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCI AND COMMEN Continued from	ITS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]		1.2/2	0.0	SAND: White to tan to buff, fine moist.			SP		
5—		1.0/2	0.0						
0-1		1.1/2	2.0	SAND: Pink to buff to white, fine medium-grained.	?- to		SP		
25		1.2/2	7.0	SAND: Pink to tan to orange to coarse-grained, moderate grav		• • •	SW		
0-1	1	2.0/2	G.C.	SAND: Buff to tan, very fine- to some gravel, silty, saturated.	o medium-grained with		SP		
5—	1	2.0/2	N.M.	SAND: Buff to brown to red to a medium-grained, silty, trace cla					
0-1		1.1/2	N.M.	SAND: White, fine- to medium-g	rained, moist.		SP		
5		2.0/2	G.C.	SAND: Rose to pink to buff to v coarse-grained, saturated.	white, fine- to	• • •	SW		
50-		1.9/2	G.C.	SAND: Pink to brown to white, fi medium-grained, saturated.	ine- to		SP		
55—									
50-									
35									

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-3D	BORIN	G NO. SFF-SB-46		
LIENT: SOUTHNAVFACENGCOM			PROJE	CT NO: 7518-40		
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/11/92		COMPLTD: 5/11/92		
IETHOD: Mud Rotary	CASE SIZE: 4&8 inches	SCREEN INT.: 144-149 F	T PROTEC	TION LEVEL: D		
TOC ELEY: 179.75 FT.	MONITOR INST.: OVA	TOT DPTH: 149FT.	DPTH T	O¥ FT.		
OGGED BY: J. Koch	WELL DEVELOPMENT DATE:		SITE: 14	466, South Fuel Fa	arm	
SAMPLE SAMPLE SAMPLE FEET OUT STANDS FEET OF SAMPLE FEET OUT STANDS FEET OF SAMPLE SAM	SOIL/ROCK DESCRIPT AND COMMENTS	ZOI.	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5— - 10— 10— 1.6/2 0.0	AYEY SAND: Red-brown, fine- to	o medium-grained.	SC SC	POSTHOLE	\$1.28.21.21.21.21.21.21.21.21.21.21.21.21.21.	
1 = 1.6/6.1001	.AYEY SAND: Red-brown to yello edium-grained.	w, fine- to	- sc			
	AND: Buff to yellow to red-brown edium-grained, trace clay.	, fine- to	SP			
	AND: White to buff to red-brown, edium-grained.	fine- to	SP			
30 1.6/2 0.0 S	AND: White to buff, fine- to medic	um-grained.	SP			
	AND: White to buff to pink-brown edium-grained.	, fine- to	SP			
1.0/2 0.0			,			
	SAND: White to buff to pink, fine- race clay.	to coarse-grained,				
	SAND: White to buff to brown, fine nedium-grained.	to	SP			
55—	PAGE 1 of 14	L	IRONMEN	i	U 1	

'ITLE: NAS Whiting Field			LOG of	WELL: WHF-1466-3	0	BORI	NG NO. SFF-SB-4	6
LIENT: SOUTHNAVFACE	NGCOM					PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwal	ter Protec	tion Inc.		DATE STARTED: 5	/11/92		COMPLTD: 5/11/9	92
IETHOD: Mud Rotary		CASE SIZE: 468 inche	es	SCREEN INT.: 144	-149 FT	PROT	CTION LEVEL: D	
OC ELEV.: 179.75 FT.		MONITOR INST.: OVA				DPTH	TO ₹ FT.	
.OGGED BY: J. Koch		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
E L. LABORATORY Z	RECOVERÝ HEADSPACE (ppm)	SOIL/ROCK (AND CO Continued (MMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
7	0/2 0.0	Continued	<u> </u>	<u> </u>				K
	0.0					l		
80 -	.8/2 1.0	SAND: White to buff to bromedium-grained.	wn, fine-	to		SP		
55 -	0.0	SAND: White to buff, fine-	to coarse	e-grained.	• • •	SW		
70 -	0/2 0.0	SAND: White to buff to rose with some gravel.	e, fine- t	o coarse-grained	• • •	SW		
75 - 1.1	0.0	SAND: White to rose to yell medium-grained.	llow, fine-	to		SP		
30	0.0	SAND: White to buff to rose coarse-grained.	e, fine- t	0	• • •	SW		2" 2" 2"
25	3/2 0.0							1 2 2 2
0-	.5/2 0.0	SAND: Buff to tan to yellow medium-grained.	w, fine- t	0		SP		4" 4" 4" 4
5—	0.0							1 2 2 2 2
0 - 1.	.0/2 0.0	SAND: Tan to buff to yello coarse-grained, trace cla		0	• • •	SW		
05	.0/2 0.0	SAND: Tan to buff to yello coarse-grained, trace cla		to	• • •	SW		
]		PAGE 2		•		SW /		

ITLE: NAS Whiting F	<u></u>			LOG of	WELL: WHF-1466	-3D	BORI	ING NO. SFF-SB-4	6
LIENT: SOUTHNAVE	ACENGCON	4					PROJ	ECT NO: 7518-40	
ONTRACTOR: Ground	water Pro	tection	Inc.		DATE STARTED	5/11/92		COMPLTD: 5/11/9	2
ETHOD: Mud Rotary			CASE SIZE: 488 inch	nes	SCREEN INT.:	44-149 FT	PROT	ECTION LEVEL: D	
OC ELEV.: 179.75 FT			MONITOR INST.: OVA		TOT DPTH: 149F	Т.	DPTH	TO ₹ FT.	
OGGED BY: J. Koch			WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
L LABORATORY W	RECOVERY HEADSPACE	(wdd)	SOIL/ROCK AND C	OMMENTS	,	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
7 1		SA	ND: Rose to tan to buff	to white,			SW		
1 🗗	2.0/2 G	.C. co	arse-grained, saturated	d.		• • •			
15—									
° /	1.0/2 G		ND: Rose to buff, fine- turated.	to coarse	e-grained,	• • •	SW		
1 [
		.							
1									
1									
25									
1									
1									
0-			AY: Light gray to brown		ticity, some mica,		CL		
<u> </u>		301	me sand, very fine-grai	irieu.					
, -									
95—		CL mic	AY: Light gray to brown a.	n, moderai	te plasticity, some		CL		
1 [
,o			AY: Brown to gray to p	ink high r	alasticity pebbles		СН		
		mic		iim, iligii p	nastionty, peppies	====	CH		
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15—									目
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50—									لنننا
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55—									
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30—									
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TITLE: NAS Whiting Fie	:IQ			LOG of	WELL: WHF-1466-	4	BORI	NG NO. SFF-SB-4	0
CLIENT: SOUTHNAVFA	CENGC	ОМ					PROJ	ECT NO: 7518-40	
CONTRACTOR: Ground	rater Pr	rotectio	n Inc.		DATE STARTED:	3/16/92		COMPLTD: 3/16/	92
METHOD: 4.25" HSA			CASE SIZE: 4 inches		SCREEN INT.: 13	2-147 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 190.37 FT.			MONITOR INST.: OVA		TOT DPTH: 151FT.	,	DPTH	TO ¥ 135 FT.	
LOGGED BY: N. Pagan	0		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
L LABORATORY BY SAMPLE ID. SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	1.2/2	2.0	CLAY: Yellowish-brown to	red, sligh	tly sandy.		SC	POSTHOLE	
15—	1.2/2	0.0	SANDY CLAY: Gray to yell stratification. SAND: Light red, orange, o coarse-grained, poorly	yellow, an		• • •	SW		
30—	1.1/2		SAND: Light pink to white poorly-sorted, slightly da		medium-grained,	• • •	S₩		
35—	1.0/2		SAND: Pink, rose, light gra moderate-sorting.	ay, mediun	n-grained,		SP		
40—	1.1/2		SAND: Pink to white to lig coarse-grained, fair sort		medium- to	• • •	SW		
45	1.3/2	0.0			•				
50	1.3/2	1	SAND: Light yellow to wh orange, fine- to coarse- slightly silty, damp.			• • •	SW		

TITLE: NAS Whiting Field	I		LOG of	WELL: WHF-1466-	4	BOR	ING NO. SFF-SB-4	0
CLIENT: SOUTHNAVFACE	ENGCOM					PRO.	JECT NO: 7518-40	
CONTRACTOR: Groundwa	ter Prote	ction Inc.		DATE STARTED:	3/16/92		COMPLTD: 3/16/	92
METHOD: 4.25" HSA		CASE SIZE: 4 inches	3	SCREEN INT.: 13	2-147 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 190.37 FT.		MONITOR INST.: OVA		TOT DPTH: 151FT	•	DPTH	TO ♀ 135 FT.	
OGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:			SITE	: 1466, South Fuel F	arm
L LABORATORY L LAB	RECOVERY HEADSPACE (DOM)	SOIL/ROCK AND C Continued	OMMENTS		SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
7 1	0/2 1.0	SAND: White, medium-grain well-sorted.				SP		77
1 -		well-sorted.			130.134.13			HH
50-								
	.1/2 1.0							
55—	_	SAND: White, fine- to med	lium-orain	ed, slightly silty.		SW		
<u> </u>	4/2 1.0	poorly-sorted.			• • •	5"		
′o—	.1/2 0.0	SAND: White, medium-grain	ned, fair s	orting, trace	12512512	SP		33
	.1/2 0.0	heavy minerals, damp						
1					1			
75—	.2/2 0.0	SAND: White to pink to ligit	ht yellow,	medium-grained,	7.7.2.2	SP		
		fair sorting.			13213213		•	7
30-	.1/2 1.0							
1								
35		CAND. Doing to light walls	u. ia Kabi	rad madium - ta				
1.	4/2 0.0	SAND: Beige to light yello coarse-grained, some gra			• • •	SW		
						,		
90								
	.0/2 0.0							7 7
_								
95—	2/2	SAND: Yellowish-gray to				SW		
] [4]	.2/2 1.0	coarse-grained, fair to p	oor sortin	g, some gravel.	• • •	•		
1								
00	1.1/2 0.0	SAND: White to pink, fine-			. • .	SW		
<u> </u>		poorly-sorted, trace of h	icory mill	și dia.				
_{as}			4					
05	.0/2 0.0	ı						
1 +								
				-				
, · · ·	-	.	2 of 14	00 4 155		_S₩	7 TAL SERVICES	T. 15

TITLE: NAS Whiting Field	l		LOG of	WELL: WHF-1466-	4	BORI	NG NO. SFF-SB-4	0
CLIENT: SOUTHNAVFACE	NGCOM					PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwa	ter Protec	tion Inc.		DATE STARTED:	3/16/92		COMPLTD: 3/16/	92
METHOD: 4.25" HSA		CASE SIZE: 4 inches		SCREEN INT.: 132	2-147 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 190.37 FT.		MONITOR INST.: OVA		TOT DPTH: 151FT.		DPTH	TO ¥ 135 FT.	
LOGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
E LABORATORY W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.	1/2 0.0	SAND: White to beige to re coarse-grained, some gra			• • •	SW		
	ŕ							
115—	3/2 0.0							
20-		CANDI Biolish biogo As un						
	1/2 0.0	SAND: Pinkish-biege to wh coarse-grained, some gra			• • •	SW		
25 - 1.4	4/2 0.0							
30 - 1	2/2 0.0	SAND: White, medium- to opoorly-sorted.	coarse-gr	ained,	• • •	SW		
35 - 1	5/2 0.0	SAND: Light pinkish, white, poorly sorted, saturated.	, coarse-	grained, gravelly,	• • •	SW		
10								
15—	.0/2 0.0	SAND: White to beige, med fair sorting, saturated.	dium-toc	oarse-grained,		SW		
50-								
55—								
50—								
65_								
,,, –	-	פאפר	3 of 14	SS_4 ADD	ENIVERA		TAL SERVICES	TNC

	•	ld			LOG of	F WELL: WHF-1466-	5R	BORI	NG NO. SFF-SB-3	4	
LIENT: SOUTH	NAVFA	CENGO	СОМ					PROJ	ECT NO: 7518-40		
CONTRACTOR: 0	Groundw	ater P	rotec	tion Inc.		DATE STARTED:	6/4/92	COMPLTD: 6/4/92			
ETHOD: 4.25"	HSA			CASE SIZE: 4 inches		SCREEN INT.: 117	7-132 FT	PROT	ECTION LEVEL: 0		
TOC ELEV.: 175.	.18 FT.			MONITOR INST.: OVA		TOT DPTH: 132FT	•	DPTH	TO T FT.		
OGGED BY: N.	. Pagan	0		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm	
L LABORATO	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	ŜOIL/ROCK AND C	DESCRIPT OMMENTS	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
-		-							POSTHOLE		
5—		1.0/2	0.0	SAND: Red, medium-graine	ed, well-so	orted.		SP	11,15,20,28		
10—		1.0/2	1.0	SAND: Red, gold, pink, med well-sorted.	dium-grain	ned, sandy clay,		SC	3,8,15,22		
15—		1.0/2	0.0	SAND: White, red, pink and to coarse-graine d.	d white st	riped, very fine-	• • •	SW	3,8,14,13		
20—		1.0/2	0.0	SAND: White and red strip grading to medium grained		fine-grained, silt,	• • •	SW	5,10,14,12		
25—		1.0/2	0.0	SAND: Red and white strip coarse-grained, subangul			• • •	SW	8,10,11,15		
30—	7	1.0/2	0.0	SAND: Red and white strip fines.	ped, medio	um-grained, some		SP	10,16,17,20	*	
35—		1.0/2	0.0	SAND: Red, white, very fir brown clay.	ne- to fin	e-grained, silty,		SP	9,10,11,13		
40—	Z	1.0/2	0.0	SAND: Red and white stri	ped, fine-	-grained.		SP	20,27,37,39		
45—		1.0/2	0.0	SAND: Red and white stri medium-grained.	ped, fine-	- to		SP	9,11,17,15		
50-		1.2/2	0.0	SAND: Brown, tan and rec	d striped,	medium-grained,		SP	13,15.23,27		

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-5R		BOR	ING NO. SFF-SB-34		
LIENT: SOUTHNAVFACENGCOM		· · · · · · · · · · · · · · · · · · ·		PROJECT NO: 7518-40			
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/4	1/92	COMPLTD: 6/4/92			
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 117-13	32 FT	PROTECTION LEVEL: 0			
TOC ELEV.: 175.18 FT.	MONITOR INST.: OVA	TOT DPTH: 132FT.		DPTH	TO T FT.		
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE	: 1466, South Fuel Far	m .	
COVERY (DDM)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
]	ND: Fine to medium grained, large prounded.	cobbles, quartz,	• • •	SW	14,17,22,26		
	ND: White, fine- to medium-graine dium- and coarse- grained, redd			SP	13,17,16,18		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Red and white striped, fine- dium-grained.	to		SP	13,15,15,16	121212	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Red, white, fine- to medium- obles, subrounded.	grained, layered,		SP	18,18,19,20	12121	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	ND: Rose to beige to gold, fine- dium-grained.	to		SP	18,20,23,22		
	ND: Gold and white striped, fine- dium-grained, trace coarse grair			SP	9,21,27,28	12 12 1	
1	ND: Gold and white striped, mediarse-grained.	um- to		SP	29,22,23,25		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Gold, medium-grained, some ading to white, fine grained.	coarse-grained,		SP	24,27,26,30	1 2 1 2 1 2 1	
	ND: Gold and white striped, fine- dium-grained.	- to		SP	18,32,36,40	1 2 1 2 1 2	
	.ND: Gold and white striped, medi arse-grained.	ium- to	• • •	SW	21,25,36,42		
105 - 2.0/2 5.0 S	ND: Pinkish, very fine-grained, s	iit.		SP	19,22,26,30		
110	PAGE 2 of 14	66-58 ADD 5	NVIDO	SP	TAL SERVICES.	INC	

TLE: NAS Whiting Field	LOG of	f WELL: WHF-1466-5R	BORING NO. S	FF-SB-34
IENT: SOUTHNAYFACENGCOM			PROJECT NO:	7518-40
NTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 6/4/92	COMP	LTD: 6/4/92
THOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 117-132 FT	PROTECTION	EVEL: D
OC ELEV.: 175.18 FT.	MONITOR INST.: OVA	TOT DPTH: 132FT.	DPTH TO \$ F	Т.
GGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, Sc	outh Fuel Farm
SAMPLE SAMPLE COVERY (PPM)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THO	SOIL CLASS	WELL DATA
	AND: White, very fine- to fine-gra		SP 16,2	7,28,32
	AND: White and some gold striped edium-grained.	, fine- to	SP 36,3	7,40,44
	AND: White, some gold and red sti ne-grained.	ripes,	SP 33,4	0,44,48
	AND: Brown, grey, fine-grained, t ns, saturated.	trace of clay, 2"	SP 8,	0,44,48
2.0/2 0.0 S	AND: Red, gold, beige, fine-grain	ed, saturated.	SP Wt.	of Rod
5—				
5—				
55—				
50-				

				LUG	f WELL: WHF-1466-	6	BORING NO. SFF-SB-42		
LIENT: SOUT	HNAVFACE	NGCO	М				PROJ	ECT NO: 7518-40	
CONTRACTOR:	Groundwat	er Pr	otecti	on Inc.	DATE STARTED:	3/25/92		COMPLTD: 3/25/	/92
(ETHOD: 4.25)	HSA			CASE SIZE: 4 inches	SCREEN INT.: 115	5-130 FT	PROT	ECTION LEVEL: 0	
TOC ELEV.: 17:	3.09 FT.			MONITOR INST.: OVA	TOT DPTH: 131FT.	<u></u>		TO \$ 112 FT.	
OGGED BY: 1	N. Pagano			WELL DEVELOPMENT DATE:			SITE:	1466, South Fuel F	arm
L LABORATO	SAMPLE SAMPLE	RECOVERY	HEAUSPACE (ppm)	SOIL/ROCK DESCRIP AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				!				POSTHOLE	
5—	1.	8/2	$\alpha \alpha i$	SAND: Red and dark brown, fine- trace clay.	to medium-grained,		SC	5,5,5,5	
10-1	1.	0/2	0.0	SAND: Red, fine- to medium-grain	ed, trace clay.		SC	1,2,2,5	
15—	l.	8/2	0.0					3,3,3,3	
20—	1.	5/2	0.0	SAND: Red, very fine- to fine-gra	ined.		SP	6,6,7,8	\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"
25—	2	.0/2	0.0	SAND: Red to white, fine- to medi	um-grained.		SP	8,9,14,14	
30	2	.0/2	0.0	SAND: Red and white striped, very	y fine-grained, silt.		SM	14,14,16,16	
35—	2	2.0/2	0.0	SAND: Red and white striped, ver	y fine-grained, silt.		SM	14,16,19,20	
40—		.8/2	0.0	SAND: White and pink, very fine-gwell-sorted.	grained,		SP	16,18,22,23	
45—		1.8/2	0.0	SAND: White and beige, very finewell-sorted.	-grained,		SP	15,16,20,20	
50—		1.7/2	2.0	SAND: White with red stripes, med well-sorted.	lium-grained,		SP	10,10.12,16	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

FITLE: NAS Whiting F	ield		LOG of WELL: WHF-1466-	-6	BORII	NG NO. SFF-SB-4	2
CLIENT: SOUTHNAVE	ACENGCOM				PROJE	CT NO: 7518-40	
CONTRACTOR: Ground	iwater Protec	tion Inc.	DATE STARTED:	3/25/92		COMPLTD: 3/25/	92
METHOD: 4.25" HSA		CASE SIZE: 4 inches	SCREEN INT.: 11	5-130 FT	PROTE	CTION LEVEL: 0	
TOC ELEV.: 173.09 F1		MONITOR INST.: OVA	TOT DPTH: 131FT		DPTH '	TO ¥ 112 FT.	
LOGGED BY: N. Paga	no	WELL DEVELOPMENT	DATE:	· '	SITE:	1466, South Fuel F	arm
L LABORATORY L SAMPLE ID. W	RECOVERY HEAUSPACE (ppm)	SOIL/ROCK AND C Continued	DESCRIPTION OMMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.7/2 3.0	SAND: White with red strip coarse grains.			SP	14,14,16,15	
60—	1.7/2 2.0	SAND: White with thin strip to medium- grained.	pes of red and black, fine-		SP	10,12,12,14	
65—	1.6/2 5.0	SAND: White and red, med cobbles.	lium-grained with some small		SP	12,15,15,19	
70-	1.5/2 1.0	SAND: White with gold, me	dium- to coarse-grained.	• • •	SW	16,17,24,24	
75—	2.0/2 0.0	SAND: Red, gold, beige, victay, mottled.	ery fine-grained, silt and		SM	Wt; of Rod	
80—	2.0/2 0.0	SAND: Red, gold, grey, fir mottled.	ne-grained, silt and clay,		SM	5,6,7,8	
85—	2.0/2 0.0	SAND: White with gold stri grading to medium grained			SP	29,32,36,36	
90—	2.0/2 0.0	SAND: Beige with gold an fine-grained.	nd red stripes, very		SP	20,22,22,24	
95—	1.8/2 0.0	SAND: Beige, medium-gra	ained, well-sorted.		SP	-,22,34,32	
100	1.8/2 0.0	SAND: Very fine- to coa	rse-grained, 2" clayey lens	• • •	SW	-,22,38,50	
105—	2.0/2 1.0	SAND: Beige, very fine-	to medium-grained.	• • •	SW	50,R	

METHOD: 4.25" HSA CASE SIZE: 4 inches SCREEN INT.: 115-130 FT PROTECTION LEVEL: D TOC ELEV.: 173.09 FT. MONITOR INST.: OVA TOT DPTH: 131FT. DPTH TO \$\frac{112}{2}\$ FT.	LOG of WELL: WHF-1466-6 BORING NO. SFF-SB-42	LOG of		ield	S Whiting Fi	TLE: NAS
CASE SIZE: 4 inches CASE SIZE: 4 inches SCREEN INT.: 115-130 FT PROTECTION LEVEL: D DOE LEVEL: 173.09 FT. MONITOR INST.: 0VA TOT DPTH: 131FT. DPTH TO \$ 112 FT. SITE: 1488, South Fuel Far SOUL/ROCK DESCRIPTION AND COMMENTS CONTINUED IT OF MACHINE SITE: 1488, South Fuel Far SAMPLE ID. SAMPLE ID. SAMD: Beige with red stripes, very fine— to medium—grained. SAND: Beige, medium— to coarse—grained. SAND: Beige, gold, medium— to very coarse—grained, many large cobbles , moist. SAND: Well—sorted, saturated. SAND: White with gold and red stripes, fine—grained, well—sorted, saturated. SAND: White, medium— to coarse—grained, saturated.	PROJECT NO: 7518-40		СОМ	ACENGO	OUTHNAVEA	IENT: SO
DOE ELEV: 173.09 FT. DOGGED BY: N. Pagano WELL DEVELOPMENT DATE: SITE: 1486, South Fuel Far. SITE:	ion Inc. DATE STARTED: 3/25/92 COMPLTD: 3/25/92	Inc.	rotection	lwater P	TOR: Ground	NTRACTO
DOGGED BY: N. Pagano WELL DEVELOPMENT DATE: SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far SITE: 1468, South Fuel Far BLOWS/6-IN BLOWS/6-IN SITE: 1468, South Fuel Far BLOWS/6-IN BLOWS/6-IN SITE: 1468, South Fuel Far BLOWS/6-IN SITE: 1468, South Fuel Far BLOWS/6-IN SITE: 1468, South Fuel Far BLOWS/6-IN	CASE SIZE: 4 inches SCREEN INT.: 115-130 FT PROTECTION LEVEL: D	CASE SIZE: 4 inches			4.25" HSA	THOD: 4.
SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE ID. SAMPLE BEIGHT SAMPLE SAMPLE ID. SAMPLE BEIGHT SAMPLE BEIGHT	MONITOR INST.: OVA TOT DPTH: 131FT. DPTH TO ♀ 112 FT.	MONITOR INST.: OVA		۲.	/: 173.09 FT	OC ELEV.:
2.0/2 0.0 SAND: Beige with red stripes, very fine— to medium—grained. SW 36,48,46,50	WELL DEVELOPMENT DATE: SITE: 1468, South Fuel Farm	WELL DEVELOPMENT DATE:		เกอ	BY: N. Pagai	GGED BY
15	CONTINUES I ON THE CONTINUES OF THE CONT	AND COMMENTS Continued from PA		RECOVERY	DRATORY A	LABOR SAMPI
2.0/2 1.0 SAND: Beige, gold, medium— to very coarse—grained, many large cobbles, moist. SAND: White with gold and red stripes, fine—grained, well—sorted, saturated. SAND: White, medium— to coarse—grained, saturated. SAND: White, medium— to coarse—grained, saturated. 17,20,29,33	medium-grained.	dium-grained.	0.0	2.0/2		- -
2.0/2 3.0 many large cobbles , moist. 2.0/2 2.0 SAND: White with gold and red stripes, fine-grained, well-sorted, saturated. 2.0/2 8.0 SAND: White, medium- to coarse-grained, saturated. 2.0/2 8.0 SAND: White, medium- to coarse-grained, saturated. 9,10,12,12	-,27,29,25		1.0	2.0/2		† -
2.0/2 2.0 well-sorted, saturated. -,-,20,19	many large cobbles , moist.	any large cobbles , moist.] 3.0 m	2.0/2		
5—————————————————————————————————————	well-sorted, saturated.	ell-sorted, saturated.] 2.0 W	2.0/2		
9,10,12,12	SAND: White, medium to coarse-grained, saturated.	AND: White, medium- to coarse-g	8.0 S	2.0/2		1
	9,10,12,12		1.0	2.0/2		
15—						1
						50—
55—						55—
						50—

TLE: NAS Whiting Field		LOG	of WELL: WHF-1466-	-7	BORI	NG NO. SFF-SB-4	3
IENT: SOUTHNAVFACEN	GCOM				PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwate	r Protect	tion Inc.	DATE STARTED:	3/26/92		COMPLTD: 3/26/	/92
ETHOD: 4.25" HSA		CASE SIZE: 4 inches	SCREEN INT.: 11	5-130 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 172.26 FT.		MONITOR INST.: OVA	TOT DPTH: 131FT	•	DPTH	TO ¥ FT.	
OGGED BY: N. Pagano		WELL DEVELOPMENT DATE:			SITE:	1466, South Fuel F	arm
SAMPLE ID. SAMPLE TO SAMPL	HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5 — 1.7/ 1.7/ 5 — 1.0/	/2 0.0 /2 0.0 /2 0.0 /2 0.0 /2 0.0	CLAY: Orange-red to red, very s sand. SANDY CLAY: Red, very sandy grands or sand. SAND: Orange-red, medium- to compoorly sorted. SAND: White, some orange, coars moderately well sorted. SAND: White, pink, orange, medium coarse-grained, poorly sorted, 6 bottom of spoon. CLAY: Gray to pinkish gray, stiff SAND: White, medium-grained, mosorted.	eading to sand. carse—grained, e—grained, n— to of stiff clay at		SC SC SW	POSTHOLE	
-		SAND: Light yellow to white with		. • •	SW		

TLE: NAS Whiting Field			LOG of	WELL: WHF-1466-7		BORI	NG NO. SFF-SB-4	3	
IENT: SOUTHNAVFACENGO	ЮМ					PROJECT NO: 7518-40 COMPLTD: 3/26/92			
NTRACTOR: Groundwater F	rotection	Inc.		DATE STARTED: 3.	/26/92				
TH od: 4.25" HSA		CASE SIZE: 4 inches		SCREEN INT.: 115-	-130 FT	PROTECTION LEVEL: D			
OC ELEV.: 172.26 FT.		MONITOR INST.: 0VA		TOT OPTH: 131FT.		OPTH	TO T FT.		
OGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:		.,,-	SITE:	1466, South Fuel F	arm	
SAMPLE ID. SAMPLE ID.	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
1.5/2	0.0 SA	ND: White to light gray,				SP	·		
1.3/2	חחו	ND: White to light pink, orly sorted.	medium- t	o coarse-grained,	• • •	SW			
1.2/2	0.0 SA	ND: White, fine- to med	lium-graind	ed, poorly sorted.	• • •	SW			
1.1/2	וחחו	ND: Light yellow to ligh arse-grained, some gra		•	• • •	SW		\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"\"	
5 - 1.2/2		ND: Yellow to light yello arse-grained, fair to po							
1.3/2	0.0								
1.1/2		ND: Yellow to light yello arse-grained, fair to p			• • •	SW			
1.3/2		ND: White to light pinkis arse-grained, poorly s		edium- to	• • •	SW			
5 - 1.5/2	0.0								
0-1.3/2		ND: Rose to pinkish gra od sorting, damp	ay, medium	-grained, fair to		SP			
1.4/2		ND: Light beige to whit ood sorting.	te, medium	-grained, fair to		SP			
			2 of 14			_SP/	 TAL SERVICES		

TITLE: NAS Whiting Field	LOG o	f WELL: WHF-1466-7	BORI	NG NO. SFF-SB-4	3
CLIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Prote	ction Inc.	DATE STARTED: 3/26/	92	COMPLTD: 3/26/	92
4ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 115-130	FT PROTE	CTION LEVEL: D	
TOC ELEV.: 172.26 FT.	MONITOR INST.: OVA	TOT DPTH: 131FT.	DPTH	TO ♀ FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SITE:	1466, South Fuel F	arm
SAMPLE SAMPLE THE ADSPACE (Dpm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from PA	110N 091 4GE 2 1	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
1.2/2 0.0	SAND: White, medium- to coarse-gi sorting.		SP		
15—					
1.2/2 0.0					
1.2/2 11.0	SAND: Pink and white, medium- to d	I -	• SW		目
	poorly sorted, gravelly, very damp.		•		目
25					目
2.0/2 2.0	SAND: Beige, fine— to coarse—grai bottom 3" fine grained, silty, pinkis		• SW		
	saturated.				
30	SAND: Beige to yellow-brown, fine	- to	SW		
1.7/2 1.0	coarse-grained, poor sorting, satu	1.			لنستنا
95					
					•
10—					
45—		·			
50—					
55—					
1					
60-					
65	I .	1	1 1		

TITLE: NAS Whi	ting Fie	eld			LOG of	WELL: WHF-1466-8	3	BORI	NG NO. SFF-SB-4	4
CLIENT: SOUTH	INAVFA	CENGO	:OM					PROJ	ECT NO: 7518-40	
CONTRACTOR:	Ground	vater F	rotec	ion Inc.		DATE STARTED: 3	/27/92		COMPLTD: 3/27/	92
METHOD: 4.25"	HSA			CASE SIZE: 4 inch		SCREEN INT.: 115	-130 FT	PROTE	ECTION LEVEL: D	
TOC ELEV.: 172	.24 FT.			MONITOR INST.: OVA		TOT DPTH: 131FT.		DPTH	TO ¥ 121 FT.	
LOGGED BY: N	. Pagan	10		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
를 는 LABORATO B SAMPLE I	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
									POSTHOLE	
5—		1.5/2	0.0	SAND: Red, fine- to medic	um-graine	d, trace clay.		sc	2,2,2,2	
10—		1.5/2	0.0						3,2,2,2	1 4 4 1 6 1
15—		1.8/2	1.0	SAND: Red, fine- to media	um-graine	d, trace clay.		SC	4,5,5,5	21 21 21 2
20-		1.8/2	0.0						3,3,4,4	
25—	7	1.8/2	0.0	SAND: Red and white, med	dium-grain	ned, well-sorted.		SP	4,7,7,10	
30-		1.5/2	0.0	SAND: Red and white, coa	arse-grai	ned, well-sorted.		SP	6,12,12,12	
35—		1.8/2	0.0	SAND: White with gold and medium-grained.	d red strip	pes, fine- to		SP	6,10,12,12	
40		2.0/2	0.0	CLAY: Red, gold, beige, s	ilty, mottl	ed, dry strength.		CL	8,10,12,14	
45—	Z	2.0/2	0.0	SAND: Beige with red and medium-grained.	d pink stri	pes, very fine- to		SP	Wt. of Rod	
50		2.0/2	0.0	SAND: Beige and pink, fir	ne-graine	d, silty.		SP	7,7,8,9	12121
55				DAC	<u>E 1 of 1</u> 4	166-8 ADD	ENVIR	SW	TAL SERVICES	E TNC

TLE: NAS Whiting Field	LOG	of WELL: WHF-1466-	8	BORIN	G NO. SFF-SB-44	!
IENT: SOUTHNAVFACENGCOM				PROJE	CT NO: 7518-40	
ONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED:	3/27/92		COMPLTD: 3/27/9	92
ETHOD: 4.25" HSA	CASE SIZE: 4 inch	SCREEN INT.: 115	-130 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 172.24 FT.	MONITOR INST.: OVA	TOT OPTH: 131FT.		DPTH T	0 ₹ 121 FT.	
DGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		·	SITE: 1	466, South Fuel F	arm
SA CO CERY CO CERY CO CERY CO CERY CO CERY	SOIL/ROCK DESCRI AND COMMENTS Continued from F	5	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	AND: Beige, pink, fine- to coars		• • •	SW	-,-,17,19	
	AND: Pink and beige, fine- to me ayey sand lens, red.	edium-grained, 1"		SP	Wt. of Rod	
	AND: Beige, fine- to very coars proughout spoon.	e-grained, cobbles	• • •	SW	8,12,16,25	
0 -	AND: Beige, fine- to medium-gra	ained.		SP	12,14,20,22	
5	AND: Fine- to medium-grained,	cobbles.	• • •	SW	15,17,19,25	
2.0/2 0.0	AND: White, very fine- to mediu	n-grained.	• • •	SW	-,-,22,24	
5	SAND: Pink, fine— to medium—grain	ñed.		SP	22,24,36,40	
	SAND: White with pale pink stripe rell—sorted.	s, fine-grained,		SP	25,30,33,36	
	SAND: Beige, medium-grained gra coarse-grains, cobbles.	ading to	• • •	SW	-,26,29,30	20 20 20 21
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	SAND: Beige, medium-grained, so grains.	me coarse and fine		SP	-,-,33,34	
0.0	SAND: White, medium-grained, we	·II-sorted.		SP	50,R	
10	DAGE 2 of	1466-8 ABB	ENVIR	SP	TAL SERVICES	INC

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-8			NG NO. SFF-SB-4	4
CLIENT: SOUTHNAVFACENGCOM	•		7/65	PROJE	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection	<u> </u>	DATE STARTED: 3/2			COMPLTD: 3/27/	/92
METHOD: 4.25" HSA	CASE SIZE: 4 inch	SCREEN INT.: 115-13	30 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 172.24 FT.	MONITOR INST.: OVA	TOT DPTH: 131FT.			TO ¥ 121 FT.	
.OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE:	1466, South Fuel F	arm
RECOVERY (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND: White, very fine- to medium-	grained.		SP	-,29,30,30	Neg .
15————————————————————————————————————	ND: White, very fine- to fine-gra	ined.		SP	-,-,27,40	
1.0/2 0.0 SAI	ND: White, medium— to coarse—gra	ained, saturated.		SP	Wt. of Rod	
25————————————————————————————————————	ND: White, medium- to coarse-gra	ained, saturated.		SP	-,-,14,16	
10	ND: White, medium~ to coarse-gra	ained, saturated.		SP	10,14,20,28	
35—						
15—						
50—						
55—						
30—						
35		-				

	ield			LOG of	WELL: WHF-1466-	9	BORI	NG NO. SFF-S8-5	0
CLIENT: SOUTHNAVF	ACENGC	ОМ					PROJ	ECT NO: 7518-40	
CONTRACTOR: Ground	lwater Pi	rotection	Inc.		DATE STARTED:	3/27/92		COMPLTD: 3/27/	92
METHOD: 4.25" HSA			CASE SIZE: 4 inche	s	SCREEN INT.: 10	0-115 FT	PROTE	C) ION LEVEL: D	
TOC ELEV.: 173.2 FT.			MONITOR INST.: 0V	Δ	TOT DPTH: 116FT.		DPTH	TO ♀ 102 FT.	
OGGED BY: N. Paga	no		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
LABORATORY DE LA LA LA LA LA LA LA LA LA LA LA LA LA	RECOVERY	HEADSPACE (ppm)		(.DESCRIPT COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-								POSTHOLE	
5—	2.0/2	0.0 CLA	YEY SAND: Brick red,	fine-grain	ed.		SC	2,1,2,3	12121
10	1.7/2	0.0 SAI	ND: Tan, very fine— to	medium-gr	ained, trace		SP	2,3,3,4	
15—	1.7/2	0.0 SAI	ND: Red to brown, med	iium-graine	d, trace clay.		SP	8,7,12,8	
20-	1.8/2	0.0 SAI	ND: Buff to rose, medic	um-grained	, well-sorted.		SP	8,12,16,16	
25—	1.8/2	1.0						8,10,16,8	
30—	2.0/2		ND: White with black, g -grained.	old, and ro	se, very fine- to		SP	9,10,12,12	
35-	2.0/2		ND: White to rose, very -sorted.	/ fine- to f	ine-grained,		SP	10,12,13,14	
40	2.0/2	0.0				-		11,15,15,18	
15—	2.0/2	1.0						0,0,6,7	
50-	1.8/2	0.0						Wt. of Rod	11211211
55—	N/A	N/A						N/A	
80-	2.0/2	2.0						0,0,0,11	1 2 2
35—	1.8/2	0.0 SAI	ND: Buff to red, fine-	to medium-	grained.		SP	10,11,11,12	

CASE SIZE: 4 inches SCREEN INT.: 100-115 FT PROTECTION LEVEL: DETHOD: 4.25" HSA CASE SIZE: 4 inches SCREEN INT.: 100-115 FT PROTECTION LEVEL: DETHOD: 4.25" HSA MONITOR INST:: OVA TOT OPTH: 16FT. DPTH TO © 102 FT.		NG NO. SFF-SB-5			LOG of WELL: WHF-1466-9			ield	NAS Whiting Fi	ITLE:
CASE SIZE: 4 Inches SCREEN INT.: 100-115 FT PROTECTION LEVEL: DOC ELEV: 173.2 FT. MONITOR INST.: 0VA TOT DPTH: 116FT. DPTH TO § 102 FT.			PROJE				ОМ	ACENGO	: SOUTHNAVE	LIENT
TOC ELEV.: 173.2 ET. MONITOR INST:: OVA TOT DPTH:: 186T. DPTH TO \$ 102 FT.	27/92	COMPLTD: 3/27		27/92	DATE STARTED: 3/	Inc.	rotection	dwater Pr	ACTOR: Ground	ONTR
	D	CTION LEVEL: D	PROTE	-115 FT	SCREEN INT.: 100	CASE SIZE: 4 inches			D: 4.25" HSA	METHO
LABORATORY Sample ID. Sam		TO 및 102 FT.	DPTH '		TOT DPTH: 116FT.	MONITOR INST.: OVA			EV.: 173.2 FT.	TOC EL
LABORATORN SAMPLE ID. SAM	el Farm	1466, South Fuel F	SITE:		ATE:	WELL DEVELOPMENT D				
1.8/2 1.0 10.16.16.17	WELL DATA	BLOWS/6-IN	SOIL CLASS	LITHOLOGIC SYMBOL	IMENTS	AND COM	HEADSPACE (ppm)		ш	
1.8/2 4.0 SAND: Medium to very coarse-grained with <5mm 18,15,15,15		10,16,16,17					1]
1.0/2 1.0 2.0 2.0 SAND: Rose, very fine— to fine—grained. SP 0.20.35.37		0,0,10,15	SW	. • .	o very coarse-grained,			1.8/2		75—
1.0/2		18,15,15,15	SW	• • •	e-grained with <5mm			1.8/2		30-
1.0/2 0.0 SAND: White to brick red to rose, fine— to medium—grained. SP 0.30,35,35 1.0/2 7.0 SAND: Mustard, medium to very coarse—grained, trace clay, damp. Wt. of Rod 1.0/2 0.0 CLAY: Gray, trace silt. CL Wt. of Rod 1.0/2 0.0 CLAY: Gray to red, very stiff. CL 0.6,8,14 1.0/2 0.0 10,12,13,15 1.0/2 0.0 SAND: Mustard, fine—grained, well—sorted, saturated. SP Wt. of Rod 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP Wt. of Rod 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP Wt. of Rod 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP Wt. of Rod 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP Wt. of Rod 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP N/A 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted, saturated. SP N/A 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted saturated. SP N/A 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted saturated. SP N/A 1.0/2 N/A SAND: Mustard, fine—grained, well—sorted saturated. SP N/A 1.0/2 N/A		0,20,35,37	SP		ine-grained.	AND: Rose, very fine- to 1	1.0 SA	1.0/2		35
1.0/2 7.0 SAND: Mustard, medium to very coarse-grained, trace • • SW Wt. of Rod		0,20,25,32	SW	. • .	ine- to medium-grained.	AND: White to rose, very f	2.0 SA	1.2/2		-0e
110		0,30,35,35	SP		rose, fine- to			0.8/2	7	95—
2.0/2 0.0 CLAY: Gray to red, very stiff. 2.0/2 0.0		Wt. of Rod	SW	. • .	ery coarse-grained, trace		1 / 1 1 1	1.0/2		00-
2.0/2 0.0 2.0/2 0.0 10,12,13,15 2.0/2 N/A 2.0/2 N/A SAND: Mustard, fine-grained, well-sorted, saturated. SP Wt. of Rod	d	Wt. of Rod	CL			LAY: Gray, trace silt.	0.0 CL	2.0/2		05-
2.0/2		0,6,8,14	CL		ff.	LAY: Gray to red, very st	0.0 CI	2.0/2	<u> </u>	110-
2.0/2 N/A 2.0/2 N/A SAND: Mustard, fine-grained, well-sorted, saturated. SP Wt. of Rod SAND: Tap fine-grained well-sorted saturated.	I	10,12,13,15					0.0	2.0/2		115
SAND: Mustard, fine-grained, well-sorted, saturated.	i	9,10,14,16					N/A	2.0/2		120 <u> </u>
130 2.0/2 2.0 SAND: Tan, fine-grained, well-sorted, saturated. SP 0,8,15,30	d	Wt. of Rod	SP		ed, well-sorted, saturated.	SAND: Mustard, fine-grains	N/A s	2.0/2		125-
]	0,8,15,30	SP		vell-sorted, saturated.	SAND: Tan, fine-grained, v	2.0 S	2.0/2		130-
135 0.0 0,0,12,15	j	0,0,12,15					0.0	2.0/2		135-

ITLE: NAS Whiting Field	<u> </u>	LOG of WELL: WHF-1466-	10		NG NO. SFF-SB-6	
LIENT: SOUTHNAVFACENGCOM		1	1/05 to:	PROJ	ECT NO: 7518-40	101
ONTRACTOR: Groundwater Pro	· · · · · · · · · · · · · · · · · · ·	DATE STARTED:			COMPLTD: 11/06	/91
ETHOD: 4.25" HSA	CASE SIZE: 4 inche				ECTION LEVEL: D	
OC ELEV.: 172.08 FT.	MONITOR INST.: 0V				TO \$ 114 FT.	·
DGGED BY: N. Pagano	WELL DEVELOPMENT	r date:			1466, South Fuel F	arm
SAMPLE OT STANDERS T. T. SAMPLE SAMPLE HADSPACE	1 🕰	K DESCRIPTION COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	CLAYEY SAND: Light brod CLAY: Red, poor plactict				POSTHOLE	2 2 2
5 - 2.0/2 1	CLAY: Orange-brown to clay, poor plasticity, silty	red with streaks of sandy y.		CL	2,6,8,10	
0 - 1.5/2 1.	1.0				12,12,18,17	
1.5/2 2	SAND: Red-orange to ta trace silt, trace clay.	in, fine- to medium-grained,		SP	23,36,30,31	,
0 - 1.0/2 2	2.0			·	16,20,20,25	
1.0/2	SAND: Light tan to white trace heavy minerals.	, medium-grained, trace silt,		SP	14,18,23,26	
1.0/2		an with green to gray streaks, d, trace silt, clay, and heavy		SP	16,22,30,32	
0.8/2	2.0				16,20,24,31	
0.8/2	7.0 SAND: Tan with some gromedium-grained, trace h			SP	22,27,25,41	
15	3.0				22,34,41,58	
50 - 1.3/2 2	^{28.8} layers of light gray and	ange to tan banded with greenish silty sand, mostly d with trace silt and clay		SP	18,30,47,56	1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 =

	Field			LOG of	WELL: WHF-1466	3~10		IG NO. SFF-SB-6	
L IENT: SOUTHNA							PROJE	CT NO: 7518-40	
ONTRACTOR: Gro	undwater f	Protection	on Inc.		DATE STARTED			COMPLTD: 11/06/	91
ETHOD: 4.25" HS	A		CASE SIZE: 4 inches	3	SCREEN INT.:	107-122 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 172.08	FT.		MONITOR INST.: OVA		TOT DPTH: 122F	Τ.	DPTH	TO 🖫 114 FT.	
OGGED BY: N. Pa	gano		WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6IN	WELL DATA
]	1.0/2		SAND: Red-brown to white			7.00	SP	15,17,19,19	
50-	0.6/2	40.0						15,19,17,18	
35—	0.8/2	12001	SAND; Reddish-brown to medium~grained, well-sor		:- to		SP	22,18,34,44	
70	1.0/2	34.0				·		18,33,44,46	
75—	0.8/2		SAND: Red-brown to whit medium-grained with smal				SP	21,17,38,43	
30-	0.8/2	36.0			·			20,26,30,37	
85—	0.8/2		SAND: Reddish-brown to medium-grained.	white, find	e- to		SP	25,26,27,34	
90	1.0/2	44.0						36,38,53,51	
95—	1.0/2	36.0	SAND: Reddish-brown to medium-grained.	white, fin	e- to		SP	29,40,56,65	
00-	1.0/2	22.0	SAND: Reddish-brown to medium-grained with sma				SP	40,58,66,66	2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2
105—	0.8/	31.7	SAND: Red-brown to yel medium-grained.	llow to whi	te, fine- to		SP	32,46,57,55	

TITLE: NAS Whiting Field	LOG o	f WELL: WHF-1466-10		BORING	NO. SFF-SB-6	
LIENT: SOUTHNAVFACENGCOM				PROJEC	T NO: 7518-40	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 11/0	05/91		COMPLTD: 11/06/	91
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 107-	122 FT	PROTECT	TION LEVEL: D	
FOC ELEV.: 172.08 FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.		ОРТН ТО) ¥ 114 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE: 14	66, South Fuel Fa	arm
RECOVERY (ppm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Reddish-brown to white, finedium-grained.			SP	15,24,30,20	
	ND: Reddish-brown to green, fin dium-grained, small lenses of cla			SP	38,54,56,57	
	ND: Light red-brown, fine- to m n layers of gray to brown claye	_		SP	26,42,46,48	
1.0/2 87.0 CL	AYEY SAND: Light gray, very fin	e-grained.		SC	11,17,20,15	
	AYEY SAND: Light brown, green e-grained.	and orange, very		SC	15,27,19,18	
1.0/2 270.0					13,11,14,18	
	ND: Light red-brown to light gradium-grained with small lenses o			SC	9,17,28,29	
1.0/2 28.0 SA	ND: Light gray, fine- to medium	-grained.		SP	23,35,47,45	
1.6/2 22.0					37,51,54,58	
55— 1.0/2 4.5 SA	ND: Light gray to light red-brow	ın, fine-grained.		SP	38,57,59,63	
1.5/2 6.8	ND: Light red-brown, fine- to m	edium-grained.		SP	43,44,38,40	
65_	PAGE 3 of 14				L SERVICES.	

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-11		BOR	ING NO. SFF-SB-51	
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 3/2	29/92		COMPLTD: 3/29/9	32
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 90-1	04 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 175.87 FT.	MONITOR INST.: OVA	TOT DPTH: 104FT.		DPTH	TO \$ 90 FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE	: 1466, South Fuel Fa	erm .
DEPTH TITLE SAMPLE SAMPLE GDIBJ	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				,	POSTHOLE	
5 1.0/2 0.0 CL	AYEY SAND: Brick red, fine- to r	nedium-grained.		SC	3,3,3,2	
10 1.5/2 0.0					3,3,2,3	
	.NO: Red to tan, fine— to medium- ay.	-grained, trace		SC	6,15,15,18	
- 2.0/2 0.0	AYEY SAND: Red to buff, medium			SC	10,12,18,18	
25 - 1.8/2 0.0 S.	ND: White, fine- to medium-grain	ed, well-graded.		SP	12,16,18,23	
2.0/2 1.0					15,24,30,31	
35 2.0/2 1.0					22,29,30,31	
40 2.0/2 1.0 S	NND: White, fine-grained, well-son	rted.		SP	21,30,33,40	
45 2.0/2 1.0 S	ILTY CLAY: Tan to rose to brown			CL	12,12,12,12	
	AND: Tan to rose to brown, very ell-sorted.	fine-grained,		SP	0,12,12,13	
55	PAGE 1 of 14	66_11 ADD 5	NVIDO	SP	 - TAL SERVICES.	TNC

COC Color Companies Co	ITLE: NAS Whiting Field		LOG of WELL: WHF-1466	3-11	BORING	NO. SFF-SB-5	1
CASE SIZE: 4 inches SCREEN INT.: 90-104 FT PROTECTION LEVEL: 0	LIENT: SOUTHNAVFACENGCOM	1			PROJEC	T NO: 7518-40	
DOC ELEV: 175.87 FT. MONITOR INST.: OVA TOT DPTH: 10.4FT. DPTH TO \$ 90 FT.	ONTRACTOR: Groundwater Prot	tection Inc.	DATE STARTED	: 3/29/92		COMPLTD: 3/29	/92
Sample In. Sample Mell Development Date: Site: 1466, South Fuel Farm Sample In. Samp	ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.:	90-104 FT	PROTEC	TION LEVEL: 0	
LABORATORY Solity	FOC ELEV.: 175.87 FT.	MONITOR INST.: OVA	TOT DPTH: 104	т.	DPTH TO	¥ 90 FT.	
1.6/2 1.0 SAND: Tan to red, fine-grained, well-sorted. SP 0,0,15,20 0,0,15,2	OGGED BY: N. Pagano	WELL DEVELOPMENT	DATE:		SITE: 14	66, South Fuel F	arm
1.8/2 1.0 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,30 0.0,15,20 0.0,15,23,3	SAMPLE SAMPLE FIT SAMPLE FIT SAMPLE S	Soil/Rock AND CO Continued	OMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
SAND: White to pink, fine- to medium-grained. SP 0,0,19,26 1.5/2 7.0 SAND: Gold, medium-grained, well-sorted. SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.	1.8/2	SAND: Tan to red, fine-gr	ained, well-sorted.		SP	0,0,15,20	
SAND: White to pink, fine- to medium-grained. SP 0,0,19,26 1.5/2 7.0 SAND: Gold, medium-grained, well-sorted. SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.		0				0,0,15,20	
SAND: White to pink, fine- to medium-grained. SP 0,0,19,26 1.5/2 7.0 SAND: Gold, medium-grained, well-sorted. SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.		.0				10,15,23,30	
SAND: White to pink, fine- to medium-grained. SP 0,0,19,26 1.5/2 7.0 SAND: Gold, medium-grained, well-sorted. SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.		SAND: White, medium-grain	ned, well-sorted.		SP	12,15,18,20	
SAND: White to pink, fine- to medium-grained. SP 0,0,19,26 1.5/2 7.0 SAND: Gold, medium-grained, well-sorted. SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.		0				0,10,17,20	
SAND: Buff to red to gold, fine- to coarse-grained, well-graded. SAND: Buff fine- to medium-grained.		SAND: White to pink, fine-	to medium-grained.		SP	0,0,19,26	
SAND: Buff fine- to medium-grained	35 - 1.5/2 7.	.0 SAND: Buff to red to gold			SP	10,12,15,15	
SAND: Red to rose, very fine- to medium-grained. 50,REF 1.3/2 2.0 SAND: Red to gold, fine- to medium-grained. 50 SP 23,25,25,25		SAND: Buff, fine- to medic	um-grained.		SP	30,45,REF	
00- 1.5/2 2.0 SAND: Red to gold, fine- to medium-grained. SP 23,25,25,25		SAND: Red to rose, very f	ine- to medium-grained.		SW	50,REF	
	1.5/2 2.	SAND: Red to gold, fine-	to medium-grained.		SP	23,25,25,25	
SAND: Buff to rose, fine- to medium-grained, damp. 50,REF	05 1.8/2 1.	SAND: Buff to rose, fine-	to medium-grained, damp.		SP	50,REF	

						UG Of	WELL: WHF-1466-1	2	BOKI	NG NO. SFF-SB-5	3
	IT: SOUTH								PROJ	ECT NO: 7518-40	·····
CONT	RACTOR: G	ound	water F	rotec			DATE STARTED: 3			COMPLTD: 3/30/	92
METH	OD: 4.25" H	SA			CASE SIZE: 4 inches		SCREEN INT.: 125	-140 FT		CTION LEVEL: D	
TOC E	LEV.: 189.9	2 FT.			MONITOR INST.: OVA		TOT DPTH: 147FT.			TO ☐ 129 FT.	
LOGGI	ED BY: N.	Pagar	10		WELL DEVELOPMENT DAT	TE:			SITE:	1466, South Fuel F	arm
DEPTH FT.	LABORATOR SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DES AND COMM		ON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-										POSTHOLE	
5—			1.5/2	N/A	CLAYEY SAND: Gold to red, fi with 5-25 mm pebbles.	ne- to	medium-grained,		sc	6,8,10,16	
10-			1.8/2	N/A	SILTY CLAY: Red to buff.				CL	10,10,10,14	1 2 2 2 1
15-			1.8/2	N/A	SANDY CLAY: Red. SAND: Red, medium-grained, v	well-so	rted.		SC	10,12,18,20	
- 			2.0/2	N/A	SAND: Red to white, medium-c	grained	, well-sorted.		SP	16,18,20,20	
25— - -			1.8/2	1.0	SAND: Red to white, fine- to	medium	-grained.		SP	10,15,22,22	
30 			2.0/2	N/A	CLAY: Purple, stiff.				СН	6,7,7,12	"
35— -		7	2.0/2	N/A	SILTY CLAY: Red to white.				CL	4,5,5,5	
- 40 - -			2.0/2	1.0	SAND: White, fine-grained, we	ell-sort	ed.		SP	30,45,45,48	
45— - -		7	2.0/2	1.0						10,12,31,40	21 21 21
50—		7	1.8/2	N/A	SAND: White to red, very fine CLAYEY SAND: White, silty.	-grain	ed, silty.		SP	10,12,12,15	

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-12	BORING NO. SFF-SB-53		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-4	0	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 3/30/92	COMPLTD: 3/3	30/92	
ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 125-140 FT	PROTECTION LEVEL:		
OC ELEV.: 189.92 FT.	MONITOR INST.: OVA	TOT DPTH: 147FT.	DPTH TO ¥ 129 FT.		
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, South Fue	l Farm	
RECOVERY (PDII)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	SYM	SOIL CLASS NI-9/SMOT8	WELL DATA	
1.0/2 4.0	.ND: White to pink, fine-grained.		SP 10,10,10,12	7 2 2 2	
1.0/2 7.0 S	ND: White to pink, very fine- to fi	ine-grained.	SP 10,12,12,16	1212121	
5 - 1.2/2 3.0 S	ND: White, fine— to medium—graine	ed, well-graded.	SP 9,15,20,22	1 4 1 4 1 4	
	NND: Tan to rose, fine- to very co th <3mm pebbles, poorly graded.	parse-grained . • •	SW 0,15,14,15		
	AND: White, fine— to medium—graine porly—graded.	ed, . • •	0,0,0,15		
	AND: White, fine- to coarse-graine porly-graded.	ed,	SW 0,0,23,23	,	
35 - 1.2/2 4.0 S.	AND: White to pink, medium- to coa	arse-grained.	SW 20,23,25,25		
	AND: White, fine— to coarse—graine porly—graded.	ed,	SW 0,20,22,22		
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	AND: White to red, fine- to coarse porly-graded.	e-grained,	SW 0,0,20,25		
1.5/2 3.0 S	AND: White, fine— to medium—graine	ed, well-graded.	SP 28,30,37,35	7 2 2 1 2 1	
05 - 1.7/2 4.0 S	AND: White to red, medium-grained	d, well-sorted.	SP 0,37,39,40	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	

TITLE: NAS Whiting Field		LOG of WELL: WHF-	1466-12	BORI	NG NO. SFF-SB-5	3
CLIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	Inc.	DATE STAF	RTED: 3/30/92		COMPLTD: 3/30	/92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN IN	IT.: 125-140 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 189.92 FT.	MONITOR INST.: OVA	TOT DPTH:	147FT.	DPTH	TO \$ 129 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT	DATE:		SITE:	1466, South Fuel F	arm
DEPTH SAMPE OF THE SAMPES OF THE ADSPACE (ppm)	AND CO	DESCRIPTION IMMENTS From PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
] Visto To SA	ND: Tan to red to gold, arse-grained, well-grad	medium- to		SP	0,0,20,25	
115 1.4/2 1.0					20,20,22,22	
20— 20— 200/2 0.0 SI	LTY CLAY: Red to gold t	o tan, soft, moist.		CL	Wt. of Rod	
25 -	LTY CLAY: Gray to purp	le-red, soft, moist.		CL	Wt. of Rod	
2.0/2 0.0 SI	LTY CLAY: Tan to gray,	soft, moist.		CL	0,7,9,10	
2.0/2 0.0 SA	NDY CLAY: Gold, moist.			sc	Wt. of Rod	
	AND: Tan, fine- to mediu uturated.	m-grained, trace clay	<i>/</i> .	SP	0,0,15,15	
45————————————————————————————————————	AND: Tan, fine-grained,	well-sorted, saturate	d	SP		
50 NR						
55—						
60						
165—						

ITLE: NAS Whiting Field	LOG of	f WELL: WHF-1466-13		BORIN	G NO. SFF-SB-23	
LIENT: SOUTHNAVFACENGCOM				PROJE	CT NO: 7518-30	
CONTRACTOR: Groundwater Protection	n Inc.	DATE STARTED: 5/	21/92		COMPLTD: 5/21/9	2
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 115-	130 FT	PROTECTION LEVEL: D		
TOC ELEV.: 177.31 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT.		DPTH T	O \$ 118.5 FT.	
OGGED BY: J. Williams/N. Pagano	WELL DEVELOPMENT DATE:			SITE: 1	466, South Fuel Fa	arm
PFTH FT. COLEANORER SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					POSTHOLE	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.AY: Reddish brown to tan, high p akes.	lasticity, mica		СН	5,10,12,17	
10 - 1.5/2 0.0 CI	.AY: Light reddish brown to pink,	very stiff.		СН	4,7,11,12	
	AND: Dark red to peach, fine- to ell-sorted.	medium-grained,		SP	3,6,8,10	
	AND: Dark pink to peach, fine- to ell-sorted, trace heavy minerals.	medium-grained,		SP	5,7,7,9	
25 -	AND: Light pink to peach, medium- parse-grained, well-sorted, trace			SP	5,6,8,12	
1.7/2 0.0					7,10,11,14	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	AND: White, fine-grained, well-soninerals.	rted, trace heavy		SP	10,12,18,22	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AND: White to light pink, fine- to ace heavy minerals.	coarse-grained,	• • •	SW	14,18,24,14	
	LAYEY SAND: Light gray, very fin eavy mineral, mica	ne-grained, trace		SP	8,14,15,12	7 2 2 1
	LAYEY SAND: White, very fine-gr inerals.	ained, trace heavy		SP	5,7,12,12	
55	PAGE 1 of 14	66-13 ADD 5	ENVIDO	SP	AL SERVICES	INC

TITLE: NAS Whiting Field			LOG of WELL: WHF-1466-	-13	BORIN	NG NO. SFF-SB-2	3
CLIENT: SOUTH	INAVFACENGCOM				PROJE	ECT NO: 7518-30	
CONTRACTOR:	Groundwater Protec	tion Inc.	DATE STARTED:	5/21/92	COMPLTD: 5/21/92		
METHOD: 4.25"	HSA	CASE SIZE: 4 inches	SCREEN INT.: 11	5-130 FT	PROTE	CTION LEVEL: 0	
TOC ELEV.: 177	.31 FT.	MONITOR INST.: OVA	TOT DPTH: 130F	Τ,	DPTH	TO ¥ 118.5 FT.	
LOGGED BY: J.	Williams/N. Pagano	WELL DEVELOPMENT	DATE:		SITE:	1466, South Fuel F	arm
E LABORATO	SAMPLE SAMPLE RECOVERY (ppm)		DESCRIPTION MMENTS From PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/G-IN	
	1.7/2 0.0	SAND: White, fine- to mediu minerals, mica.			SP	12,18,25,28	
60-	1.7/2	CLAYEY SAND: Light gray, minerals. SAND: Light pink, medium-			SP	12,8,15,16	
65	1.7/2 0.5	heavy minerals. SAND: White, fine- to mediu trace heavy minerals, mica.	um-grained, well-sorted,		SP	12,19,30,34	
70	2.0/2 0.5					20,22,20,22	
75— -	1.5/2 1.0	SAND: White, fine- to medic trace heavy minerals, mica		• • •	SW	19,22,29,34	
80—	2.0/2 0.0					25,33,35,41	
85	1.5/2 2.0	SAND: White, fine- to medi trace heavy minerals.	um-grained, well-sorted,		SP	17,22,28,26	
90-	2.0/2 1.0	CLAY: Gray, stiff.			СН	3,4,5,8	
95—	1.5/2 N/A	CLAYEY SAND: Light gray, well-sorted.	, fine— to medium—grained,		SC	Wt. of Rod	
100-	1.5/2 1.0	CLAYEY SAND: Light pink coarse-grained, moderate heavy minerals.	and gray, medium- to e to good-sorting, trace		SC	22,29,29,31	
105—	1.9/2 4.0					25,28,34,31	

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-13	BORING NO. SFF-SB-23	3		
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-30			
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/21/92	COMPLTD: 5/21/9	92		
ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 115-130 FT	PROTECTION LEVEL: D			
OC ELEV.: 177.31 FT.	MONITOR INST.: OVA	TOT DPTH: 130FT.	DPTH TO ¥ 118.5 FT.			
OGGED BY: J. Williams/N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, South Fuel F	arm		
RECOVERY (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI	SOIL CLASS MI-9/SMOTB	WELL DATA		
] SAI	ND: Light gray, medium- to coars avy minerals, silt.		SW 25,33,50			
1.8/2 1.0			31,50			
	ND: Pale orange to tan, medium- arse-grained, little very coarse g		SW 50			
	ce heavy minerals, mica, wet.	g. cto 5 octifut				
_						
<u> </u>						
						
-						
<u>-</u>						
<u>, </u>						

ITLE: NAS Whiting Field	LOG	6 of WELL: WHF-1466-1	4	BORI	ING NO. SFF-SB-7	
LIENT: SOUTHNAVFACENGCOM	l .			PROJ	JECT NO: 7518-40	
ONTRACTOR: Groundwater Pro		DATE STARTED: 5	/22/92		COMPLTD: 5/22/	92
ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 120)-135 FT	PROT	ECTION LEVEL: D	
OC ELEV.: 181.05 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.		DPTH	TO ₹ 125.2 FT.	-
OGGED BY: K. Murray/N. Paga	no WELL DEVELOPMENT DATE			SITE	: 1466, South Fuel F	arm
SAMPLE TO SAMPLE TO THE ADDRESS AND THE ADDRES	SOIL/ROCK DESCI		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
	IA .				POSTHOLE	
5	CLAYEY SAND: Dark brown, ver- fine-grained.			sc	4,4,4,3	1 2 2
10	SANDY CLAY: Gray, moderate to fine-grained. SANDY CLAY: Dark brown to taggrained, moderate plasticity.			SC	4,6,4,5	
15—		CLAYEY SAND: Mottled buff to rust, very fine- to nedium-grained, low to moderate plasticity.			4,5,5,6	
20 1.0/2	SAND: Yellow to rust to black, fine-grained, moderate- sortin			SP	8,9,9,14	
25 - 1.6/2	0.0				4,4,6,5	
30	SAND: Yellow to rust, very fine SAND: Rust, fine- to medium-g sub-rounded, wet.			SP	12,25,34,42	
35 1.5/2	0.0				20,29,37,42	
40	SAND: Rust, medium— to coarse SAND: Mottled white, orange a fine—grained, well—sorted, wet	nd red, very fine- to	• • •	SW	20,29,33,30	
45—————————————————————————————————————	O.0 SAND: White, very fine- to fine damp.	e-grained, well-sorted,		SP	20,29,29,30	A
50	0.0 SAND: White to light pink with	rust bands, as above.		SP	17,17,18,20	A
55_	PAGE 1 -	f 1466-14 AB E	ENVIR	SP	NTAL SERVICES	TNI S

TITLE: NAS Whiting				LOG of	WELL: WHF-1466-1	4		NG NO. SFF-SB-7	
CLIENT: SOUTHNAY						·	PROJECT NO: 7518-40		
CONTRACTOR: Grou	indwater P	rotectio			DATE STARTED: 5			COMPLTD: 5/22/	92
METHOD: 4.25" HS/	<u> </u>		CASE SIZE: 4 inches		SCREEN INT.: 120			CTION LEVEL: 0	
TOC ELEV.: 181.05			MONITOR INST.: OVA		TOT DPTH: 135FT.			TO ♀ 125.2 FT.	
LOGGED BY: K. Mu			WELL DEVELOPMENT	DATE:				1466, South Fuel F	arm
L LABORATORY E	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	MMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	
]	1.6/2	00 S	AND: Light brown to rust, ell-sorted, damp.	fine-grain	ned, very		SP	12,12,17,19	
60—	1.5/2	0.0 S p S	AND: Mottled yellow and to edium-grained, moderate AND: Red-brown, fine-to corly-sorted. AND: White to buff, very	– sort, dar o coarse-(mp. grained,		SP	11,16,16,15	
65—			ell-sorted. AND: Buff to pink to pale	. volley ve	vy tipp-grained		SP		
75—	1.6/2	0.5 W	ell-sorted. AND: Pink to light brown to edium-grained with some eavy minerals, silt.	lo buff, ve	ry fine- to		SP	19,20,19,20	
80—	1.1/2	00	AND: Buff, very fine- to ery coarse quartz grains.	-	ained with some	• • •	SW	16,25,25,25	
85—	1.8/2	0.2	CAND: White, very fine-gra	ained, well-	-sorted.		SP	16,25,25,25	
90—	1.8/2	0.2	SAND: Buff, very fine-gra	ined, well-	sorted, damp.		SP	22,27,27,31	
95—	1.4/2	62.0						23,33,33,34	
100-	1.8/2		SAND: Buff to light brown, coarse-grained with some			• • •	SW	25,27,37,37	
105—	2.0/2	1.5	SAND: Light pink to white,	fine-grain	ned.		SP	27,37,46,49	

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TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-14	BORING NO. SFF-SB-7
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-40
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/22/92	COMPLTD: 5/22/92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 120-135 FT	T PROTECTION LEVEL: D
TOC ELEV.: 181.05 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.	DPTH TO \$ 125.2 FT.
OGGED BY: K. Murray/N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, South Fuel Farm
SAMPTE SAMPTE SAMPS THE ADSPACE (ppm)	SOIL/ROCK DESCRIPTS AND COMMENTS Continued from PAGE	THO	SOIL CLASS SOIL CLASS THE STATE STATE SOIL CLASS WELL DATA
1.6/2 4.0 SA	ND: Buff, very fine-grained, well-		SP 37,43,50,50
115 1.4/2 22.0 SA	ND: White to buff, very fine-grain	ned, very damp.	SP 33,46,64,42
	ND: White to light pink, medium-gr II-sorted, very damp.	rained,	SP 34,45,45,47
	ND: Buff, fine— to coarse—grained bbles throughout, saturated.	d with quartz	• SW 22,28,36,35
	ND: Light brown, fine- to medium- orly-graded, saturated.	-grained,	
0.8/2 0.0			27,17,17,20
15— -			
50—			
55—			
60—			
165	PAGE 3 of 141	GG_14 ADD FNUT	RONMENTAL SERVICES, INC.

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-15	BORING NO. SFF-SB-26
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-30
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/22/92	COMPLTD: 5/22/92
IETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 119.5-134.5	FTPROTECTION LEVEL: D
TOC ELEV.: 177.81 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.	DPTH TO ¥ 122.7 FT.
.OGGED BY: J. Williams/N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, South Fuel Farm
PETT FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	N N N N N N N N N N N N N N N N N N N	SOIL CLASS THE SAME T
			POSTHOLE
5 0.5/2 0.0 CL	AY: Orange to red, silty, sandy, p	poor plasticity.	CL 20,20,25,30
	ND: Dark orange to red-brown, fi , clay.	ine-grained, trace	SM 10,15,17,20
0.2/2			15,20,22,22
→ I ■ 120/21001	ND: Dark orange to pink to light (dium-grained, trace silt, clay and		SP 15,20,25,30
1.5/2 0.0			16,16,16,20
	ND: Light orange to light gray, fil arse-grained, trace silt, clay and		[1]
5 1.4/2 0.0			10,10,12,12
0 - 1.3/2 0.0 SA	ND: Light gray to tan, fine- to co	oarse-grained.	SW 16,17,17,20
1.5/2 0.0 pla	AYEY SAND: Orange-red to light sticity.	·	SC 10,12,11,11
	ND: Light gray to peach, medium- arse-grained.	- to	SW 12,15,15,17
55	PAGE 1 of 146	66-15 ARR ENVIR	SP DIMENTAL SERVICES, INC.

ENT: SOUTH	TLE: NAS Whiting Field IENT: SOUTHNAVFACENGCOM			11	of WELL: WHF-1466-			CAT NO. 35/2 CA	
					0475 0710750	E /00 /00	PROJ	ECT NO: 7518-30	02
NTRACTOR: G		water P	rotecti		DATE STARTED:		TABAT		92
THOD: 4.25"	HSA			CASE SIZE: 4 inches				ECTION LEVEL: D	
C ELEV.: 177.			 	MONITOR INST.: OVA	TOT DPTH: 135FT	•		TO ¥ 122.7 FT.	
GGED BY: J.	William	s/N. Pa	gano	WELL DEVELOPMENT DATE				1466, South Fuel F	
LABORATOR SAMPLE IC	_	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCR AND COMMEN Continued from	TS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		1.3/2	001	SAND: Buff to light gray, fine- trace heavy minerals and mica.	o medium-grained,		SP	10,12,12,14	2
1		1,9/2	0.0					15,20,21,21	1 2 1 2 1 2 1
1		1.3/2	0.0	SAND: Light orange to light pink buff, medium— to coarse—graine minerals.		• • •	SW	18,20,23,24	
	7	1.7/2	1.0	SAND: Light gray to buff, mediu coarse-grained, trace of very heavy minerals, and mica.		• • •	SW	18,15,18,20	
		1.1/2	1.5	SAND: Light gray to buff to pin coarse-grained, trace silt, hear		• • •	SW	15,19,20,21	
		1.3/2	0.0	SAND: Light pink to pale yellow coarse-grained, trace heavy m		• • •	SW	17,19,20,20	
; -		1.3/2	1.5	SAND: Light gray to buff, mediu coarse-grained, trace heavy m		• • •	SW	18,18,18,20	
<u></u>	7	1.6/2	1.0	SAND: Light gray, fine- to med heavy minerals and mica.	ium-grained, trace		SP	15,17,20,20	
5—		1.4/2	1.0	SAND: Light gray, medium- to cheavy minerals and mica.	coarse-grained, trace		SP	17,26,27,29	
p—		1.3/2	1.0					29,33,35,41	\ \ \ \ \ \ \
5—		1.4/2	0.0					30.35.35.37	, ,

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-15	BORING NO. SFF-SB-28
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-30
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/22/92	COMPLTD: 5/22/92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 119.5-134.5 F	TPROTECTION LEVEL: D
TOC ELEY.: 177.81 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.	DPTH TO ¥ 122.7 FT.
LOGGED BY: J. Williams/N. Pagano	WELL DEVELOPMENT DATE:		SITE: 1466, South Fuel Farm
DEPTH FIT. SANPLE SANPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI	SOIL CLASS MOTH
1.7/2 3.0	. ,		29,31,36,40
	ND: Light gray to buff, fine- to moved the control of the control	nedium-grained,	SP 31,37,37,38
120 - 1.4/2 2.0 SAN	ND: Light pink, fine- to medium-g	grained.	39,42,49,52 ¥
	ND: Light pink, medium- to coarso avy minerals.	e-grained, trace	SP 28,28,27,22
130—			SP 28,28,27,22
135—			
140			
145—			
150—			
155—			
160—			
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	E; NAS Whiting Field			LOG of WELL: WHF-14	00 10	5011	NG NO. SFF-SB-2	
IENT: SOUTHNAVFACENGCOM						PROJ	ECT NO: 7518-30	
ONTRACTOR: G	roundwat	er Prot	ection Inc.	DATE START	ED: 5/23/92		COMPLTD: 5/23,	/92
ETHOD: 4.25" H	ISA		CASE SIZE: 4 inches	SCREEN INT.	: 120-135 FT	PROT	ECTION LEVEL: D	
OC ELEV.: 176.4	19 FT.		MONITOR INST.: 0VA	TOT DPTH: 13	SFT.	DPTH	TO ♀ 126.5 FT.	
OGGED BY: J. 1	Williams/P	. Wagne	r WELL DEVELOPMENT	DATE:		SITE:	1466, South Fuel F	arm
L LABORATOR	SAMPLE	RECOVERY HEADSPACE	SOIL/ROCK	COESCRIPTION COMMENTS	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
							POSTHOLE	
5—	1.2	2/2 0.	FILL: Dark red, silt and g	ravel fill material.	000	FILL	9,4,4,3	
0-	1.5	5/2 0.	SILT: Dark reddish-brown	n, small quantity of sand.		мн	4,4,3,3	1 2 2 2 1
5—	1.9	5/2 0.					4,7,6,5	
0-	1.3	7/2 0.	SILTY SAND: Peach, fine	-grained, well-sorted.		SM	8,9,8,10	1 2 1 2 1 2 11
5—	1.5	5/2 0.	SAND: Pink, medium-grain	ed, well-sorted.		SP	6,7,10,11	
0-	1.	7/2 0.	SAND: Pink to peach, coatrace heavy minerals.	arse-grained, well-sorte	d,	SP	5,8,11,12	1 4 4 4 4
35—	1.	7/2 0	SAND: Light pink to peac trace heavy minerals.	th, fine- to coarse-grain	ed,	SW	5,9,12,10	
10	2.	.0/2 0	CLAYEY SAND: Gray to it well-sorted, trace heavy		ned,	SP	7,8,9,9	
15—	1.	7/2 0	SAND: Gray to light gray well-sorted, trace heavy clay.		V	SP	6,7,8,10	
50	1.	7/2 0	SAND: Light gray to light well-sorted, trace heavy			SP	7,11,11,12	

TITLE: NAS Whiting Field	LO	G of WELL: WHF-1466-	-16	BORI	NG NO. SFF-SB-2	5
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-30	
ONTRACTOR: Groundwater Protection	Inc.	DATE STARTED:	5/23/92		COMPLTD: 5/23/	92
ETHOD: 4.25" HSÁ	CASE SIZE: 4 inches	SCREEN INT.: 12	20-135 FT	PROTE	ECTION LEVEL: 0	
OC ELEV.: 176.49 FT.	MONITOR INST.: OVA	TOT DPTH: 135F1	Г.	DPTH	TO ¥ 126.5 FT.	
OGGED BY: J. Williams/P. Wagner	WELL DEVELOPMENT DATE			SITE:	1466, South Fuel F	arm
SAMPLE SAMPLE THE ADSPACE (ppm)	SOIL/ROCK DESC AND COMMEN Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.5/2 0.0					6,7,9,11	
0 - 1.5/2 1.0					11,14,15,19	
2.0/2 0.0 mir	AYEY SAND: Light gray to lig neral, quartz gravel, last 1' st nt pink, mica.			SC	11,12,15,20	
	ND: Light gray to light pink, arse-grained, trace heavy m		• • •	SW	10,12,16,19	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Very light gray, fine- to me quartz gravel, trace heav		• • •	SW	13,16,22,24	
1.5/2 0.5					7,15,17,23	
5 1.3/2 0.0					10,11,12,17	
1.5/2 0.0					11,17,18,23	2 2 2 2 2 2
	ND: Light gray to peach, fin th quartz gravel, trace havy		• • •	SW	9,14,16,20	
1.9/2 1.5 cc	ND: Very light gray to orang arse-grained with quartz gra nerals.		• • •	SW	14,17,21,22	
	ND: Light pink to peach, fine th quartz gravel, trace heav		• • •	SW	23,29,33,37	
10—	PAGE 2 o			SP_/	TAL SERVICES	

ITLE: NAS Whiting f	ield			LOG of	WELL: WHF-1466-	16	BORI	NG NO. SFF-SB-2	5
IENT: SOUTHNAVE	ACENGO	ОМ					PROJ	ECT NO: 7518-30	
ONTRACTOR: Groun	dwater f	rotect	ion Inc.		DATE STARTED:	5/23/92		COMPLTD: 5/23/	92
ETHOD: 4.25" HSA			CASE SIZE: 4 inches		SCREEN INT.: 120	0-135 FT	PROT	CTION LEVEL: 0	
OC ELEV.: 176.49 F	т.		MONITOR INST.: OVA		TOT DPTH: 135FT	•	DPTH	TO ¥ 126.5 FT.	
OGGED BY: J. Willia	ms/P. Wa	gner	WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
L LABORATORY Z SAMPLE ID. &	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.7/2	1.0	SAND: Very light gray, fine with quartz gravel, trace t			•••	SP	22,28,29,32	
5	1.5/2	3.0	SAND: Very light gray, fine trace heavy minerals.	e-grained	i, well-sorted,		SP	32,39,39,42	27.27.28日日
o	1.7/2	3.5	SAND: Very light gray, fine trace heavy minerals.	e- to coa	arse-grained,	• • •	SW	29,36,37,39	
5	2.0/2	3.5	SAND: Light pink, medium- heavy minerals, mica, satu		e-grained, trace	• • •	SW	21,29,31,50	
0—]									
5—							:		
0-									
15									
60-							, i		,
55—									
50-									
35_	ļ	1				1	I	I	

TITLE: NAS Whiting Field	LOG o	of WELL: WHF-1466-17		BORING NO. SFF-SB-31	
LIENT: SOUTHNAVFACENGCOM				PROJECT NO: 7518-40	1.1
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/2	5/92	COMPLTD: 5/25/9	92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 119-13	34 FT P	ROTECTION LEVEL: D	
TOC ELEY: 177.91 FT.	MONITOR INST.: 0VA	TOT DPTH: 134FT.	C	PTH TO ¥ 125.8 FT.	
.OGGED BY: T. Winslow/P. Wagner	WELL DEVELOPMENT DATE:		S	ITE: 1466, South Fuel Fa	erm
DEPTH COVERY RECOVERY (PPM)	SOIL/ROCK DESCRIF AND COMMENTS		LITHOLOGIC SYMBOL	BLOWS/6-IN	WELL DATA
5— 1.5/2 0.0 S	AND: Red, silty, fine-grained.			4,4,5,7	
0.0 S	AND: Pink and white, medium- to	coarse-grained.	\$	6,9,10,10	
	AND: White and orange, medium- parse-grained.	to	5	10,12,12,12	"
0.0				10,12,12,14	
1 = 102/21	AND: Orange and yellow, mediumo parse-grained.	- to :		10,8,9,9	
0.0 s	AND: Pink, medium- to coarse-gi	rained.		8,10,10,10	
0.0	AND: White, fine-grained.			14,16,20,25	
10— 1.7/2 0.0 S	AND: White and pink, fine-graine	·d.		6,7,7,2	
1.7/2	AND: White, fine- to medium-gra	ined.		SP 10,12,12,12	1 2 2 2 1
1.7/2		·		15,20,19,17	
55—			-	SP Wt. of Rod MENTAL SERVICES	

ITLE: NAS Whiting Field	LOG of WELL: WHF	-1466-17 B	ORING NO. SFF-S8-31
LIENT: SOUTHNAVFACENGCOM		P	ROJECT NO: 7518-40
ONTRACTOR: Groundwater Protection	nc. DATE STA	RTED: 5/25/92	COMPLTD: 5/25/92
ETHOD: 4.25" HSA		NT.: 119-134 FT PR	OTECTION LEVEL: D
OC ELEY.: 177.91 FT.	MONITOR INST.: OVA TOT DPTH	134FT. DF	TH TO \$ 125.8 FT.
OGGED BY: T. Winslow/P. Wagner	WELL DEVELOPMENT DATE:	SI	TE: 1466, South Fuel Farm
RECOVERY (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC SYMBOL SOIL CLASS	#ELL DATA
	ID: Pink, coarse-grained.	SF	19,20,20,20
1.5/2			10,10,16,18
70	ND: White, fine- to medium-grained.	S	8.8.13.10
75 1.7/2 4.0			15.15,19.20
1.3/2 2.0 SA	ND: White, medium— to coarse—grained.	S	20,25,33,33
1.7/2			30,48,50,50 a
90 1.7/2 1.0 SA	ND: White, fine- to medium-grained.	5	P 29,35,35,40
95 1.7/2 10.0 5	ND: White and orange, very coarse-grained	1.	19,20,20,19 h
0.3/2	ND: Yellow and pink, medium- to coarse-gr	ained.	23,30,33,31
1.7/2 2.0 S.	ND: Yellow, medium-grained.	120000	30,46,46,50

			1000	WELL: WHF-1466-	11	ונאטם	NG NO. SFF-SB-3	1
LIENT: SOUTHNAVFACENG	COM					PROJE	CT NO: 7518-40	
CONTRACTOR: Groundwater	Protection	Inc.		DATE STARTED:	5/25/92		COMPLTD: 5/25/	92
METHOD: 4.25" HSA		CASE SIZE: 4 inches		SCREEN INT.: 11	9-134 FT	PROTE	CTION LEVEL: D	
OC ELEV.: 177.91 FT.		MONITOR INST.: OVA		TOT DPTH: 134F1	т.	DPTH	TO \$ 125.8 FT.	
OGGED BY: T. Winslow/P. I	Nagner	WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
SAMPE TOTAL	HEADSPACE (ppm)		DESCRIPTIOMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.7/2	SA	ND: White and yellow, m	edium-grai	ined.		SP		77
115—	2.0 SA	ND: White, medium-grain	ned.			SP	16,18,19,20	
20		ND: White and orange, i arse-grained.	medium- to)		SP	Wt. of Rod	
25—————————————————————————————————————		.ND: Pink, coarse- to ve turated.	ery coarse	-grained,	• • •	SW	Wt. of Rod	
35—								
40		AND: Light gray, medium ell-sorted, some heavy				SP	13,11,11,13	
45 2.0/	2					·	10,10,10,10	
50 - 1.0/		AND: Gray-white, mediur oderately-sorted, some				SP	14,18,14,14	
155—								
160—								
165—								

TITLE: NAS Whiting Field	LOG of W	ELL: WHF-1466-18	BORING I	NO. SFF-SB-10	
CLIENT: SOUTHNAVFACENGCOM			PROJECT	NO: 7518-40	
CONTRACTOR: Groundwater Protection In		DATE STARTED: 5/25/92	C	OMPLTO: 5/25/92	2
METHOD: 4.25" HSA	ASE SIZE: 4 inches	SCREEN INT.: 120-135 FT	PROTECTI	ION LEVEL: B.C	
TOC ELEV.: 185.58 FT.	ONITOR INST.: OVA	FOT DPTH: 135FT.	DPTH TO	¥ 122.7 FT.	
LOGGED BY: K. Murray/P. Wagner	ELL DEVELOPMENT DATE:		SITE: 146	6, South Fuel Far	m
DEPTH TI. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPTIO AND COMMENTS	Z LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0.0				POSTHOLE	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	CLAY: Brown to red-brown, finate to low plasticity.	ne-grained,	SC	5,8,9,9	
	Y SAND: Brown to red-brown, ate to low plasticity.	fine-grained, ————————————————————————————————————	SC	5,9,9,10	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CLAYEY SAND: Red, fine-grained, moderate to low plasticity.			9,12,12,15	
	Light tan to red-brown, very f e-grained, poorly sorted.	ine- to	SW	9,10,10,10	
1 7 1 1 1	Light tan to light brown, very t grained, moderately-sorted.	fine- to	SP	5,15,20,30	
	Light tan to light red, very find m-grained, moderately-sorted.	e- to	SW	10,20,20,30	
1.0/2 0.0				10,17,20,27	
10————————————————————————————————————	Light gray, high plasticity.		СН	9,10,12,12	
1.8/2 60.0				20,30,30,32	
50 - 1.6/2 80.0 CLAY	EY SAND: Light gray to light pir	nk	SC	8,7,7,8	
55	PAGE 1 of 1466	3-18 ARR ENVIRO	SP	SERVICES.	INC

<u>·</u>	Field			LOG of	WELL: WHF-1466-	18	BOR	ING NO. SFF-SB-10		
LIENT: SOUTHNA	FACENGO	СОМ					PRO.	JECT NO: 7518-40		
ONTRACTOR: Grou	ndwater f	Protect	ion Inc.		DATE STARTED:	5/25/92	COMPLTD: 5/25/92			
ETHOD: 4.25" HSA	\		CASE SIZE: 4 inches		SCREEN INT.: 120	0-135 FT	PROTECTION LEVEL: B,C			
OC ELEV.: 185.58	FT.		MONITOR INST.: 0VA		TOT OPTH: 135FT		DPTH	TO ¥ 122.7 FT.		
OGGED BY: K. Mui	ray/P. Wa	gner	WELL DEVELOPMENT	NT DATE:			SITE	: 1466, South Fuel F	ərm	
L LABORATORY &	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK I AND CO Continued	MMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
]	1.7/2		SAND: Light gray, very fine				SP	8,10,12,12		
0—	1.0/2	1.0						NOT OBTAINED		
5—	1.2/2		SAND: Light gray to pink, well-sorted.	very fine-	-grained,		SP	16,28,27,30		
0-]	1.4/2	1.0	SAND: Gray, fine-grained,	well-sort	ed.		SP	18,22,22,20		
5—	1.6/2		SAND: Light gray to light p coarse-grained with some			• • •	SW	20,22,25,30		
0	1.4/2	140.0	SAND: Light gray to buff, rwell-sorted.	πedium-g	rained,		SP	28,25,30,37		
5	1.5/2	>1000	SAND: Buff to pink, fine- t some fine gravel.	o medium	-grained with	• • •	SW	20,30,30,30		
0	N/A	N/A						10,12,12,14		
5—	N/A	N/A						28,35,40,40		
0-	1.5/2	8.0	SAND: Light gray, medium- fine sand, silt, heavy miner		se-grained, trace		SP	26,28,30		
4			SAND: White to pink, fine-	arainad	well-sorted.	11.111.1111	SP	29,35,42,43		

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-18	BORING NO. SFF-SB-10
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-40
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/25/92	COMPLTD: 5/25/92
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 120-135 FT	PROTECTION LEVEL: B,C
TOC ELEV.: 185.58 FT.	MONITOR INST.: OVA	TOT DPTH: 135FT.	DPTH TO \$ 122.7 FT.
LOGGED BY: K. Murray/P. Wagner	WELL DEVELOPMENT DATE:		SITE: 1466, South Fuel Farm
SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PAG	THO	SOIL CLASS AMOTA AI-9/SAOTA AI-9/SA
2.0/2 >5000 SAI	ND: Light pink to peach, fine- to	medium-grained.	SP 30,35,35,34
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Peach to pink, medium- to co ne quartz gravel.	arse-grained with	SP 30,37,49,50
1.8/2 >5000 coa	ND: White to orange-yellow, fine- arse-grained with some quartz gr erals, mica.		SW Wt. of Rod
	ND: Orange-yellow, fine- to mediavy minerals, saturated.	um-grained, trace	SP 41,49,50,50
30			SW Wt. of Rod
40—			
145—			
150—			
155—			
160-			
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	ing Field	u			LOG of	WELL: WHF-1466-1	19	BOR	ING NO. SFF-SB-13		
CLIENT: SOUTH	NAVFAC	ENGC	ОМ					PRO	JECT NO: 7518-40		
CONTRACTOR: G	roundwa	ater P	rotec	ion Inc.		DATE STARTED: 5	/26/92	COMPLTD: 5/26/92			
4.25" H	HSA			CASE SIZE: 4 inches	\$	SCREEN INT.: 130)-145 FT	PROTECTION LEVEL: 0			
TOC ELEV.: 188.	BIFT.			MONITOR INST.: 0VA		TOT DPTH: 145FT.	,	DPTH	TO ¶ 131.9 FT.		
LOGGED BY: J.	Koch/P.	Wagn	er	WELL DEVELOPMENT	DATE:			SITE	1466, South Fuel F	arm	
E L' LABORATOR SAMPLE ID		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
-			N/A						POSTHOLE		
5—	2	2.0/2	0.0	CLAYEY SAND: Red-brow	n, fine-gra	ained, trace silt.		sc	7,8,10,10		
10-	7 0	0.0/2	N/A	NO RECOVERY					7,12,17,24		
15—		1.0/2	0.0	CLAYEY SAND: Light gray	, very fine	e-grained.		SC	4,9,7,6		
20		1.3/2	0.0	SAND: Light gray to pink,	very fine-	-grained.		SP	12,15,23,27		
25—		0.3/2	0.0	SAND: Dark red to black, with hard pan.	fine- to m	nedium-grained		SP	33,50		
30		1.3/2	N/A	SAND: Light pink, fine-gra	ained, well	-sorted.		SP	11,17,18,19		
35—		1.3/2	N/A	SAND: Light pink, fine-gra	ained, well	-sorted.		SP	15,23,25,28		
40		1.3/2	0.0	SAND: Light pink to peac	h, fine- to	medium-grained.		SP	14,19,20,22		
45—		1.3/2	0.0	SAND: Dark red to black, with hard pan.	fine- to n	nedium-grained		SP	26,26,23,21		
50-		1.3/2	0.0	SAND: Light pink to peac well-sorted.	h, fine- to	medium-grained,		SP	10,14,16,18		

·			LOG of	WELL: WHF-1466-	19	BORI	ING NO. SFF-SB-13	3
LIENT: SOUTHNAVFACEN	COM					PROV	IECT NO: 7518-40	
ONTRACTOR: Groundwater	Protection	on Inc.		DATE STARTED:	5/26/92	COMPLTD: 5/26/92		
ETHOD: 4.25" HSA	,	CASE SIZE: 4 inches	3	SCREEN INT.: 130-145 FT			ECTION LEVEL: D	
OC ELEV.: 188.81 FT.		MONITOR INST.: OVA	<u> </u>	TOT DPTH: 145FT	•	DPTH	TO ♀ 131.9 FT.	
OGGED BY: J. Koch/P. Wa	gner	WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
SAMPE TO SAMPE TO SAMPE TO SAMPLE TO	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.3/2	0.0	SAND: Light pink, fine-gra	ained, well-	-sorted.		SP	14,16,23,28	
1.6/2	1 1 1 1 1	SAND: Light pink, fine- to vell-sorted.	medium-ç	grained,		SP	12,14,16,18	
1.5/2	0.2						9,10,11,11	
1.5/2	1.5	SAND: Light pink, medium~	- to coarsi	e-grained.	• • •	SW	10,12,17,16	
1.5/2	0.4	SAND: Light pink, fine-gra	ained, well [.]	-sorted.		SP	11,15,17,21	
1.3/2	0.3	SAND: Light pink, fine- to	o medium-ç	grained.		SP	21,29,36,42	
1.3/2	0.2	SAND: Light pink to peach	h, fine- to	medium-grained.		SP	25,42,50	
1.5/2	13.0	SAND: Light pink, fine-gra	ained, well	-sorted.		SP	15,18,23,30	
05	1.4	SAND: Light pink to peac	h, fine- to	medium-grained.		SP	28,40,50	
2.0/	2 1.5						17,38,50	
05	2 1.5	SAND: Light pink to peac	h, fine- to	medium-grained.		SP	22,27,31,42	

	LC LC	DG of WELL: WHF-1466-19	BO	RING NO. SFF-SB-13	
LIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: 7518-40	
ONTRACTOR: Groundwater Prot	ection Inc.	DATE STARTED: 5/	26/92	COMPLTD: 5/26/	92
ETHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 130-	145 FT PRO	TECTION LEVEL: D	
OC ELEV.: 188.81 FT.	MONITOR INST.: 0VA	TOT DPTH: 145FT.	DPT	H TO ♀ 131.9 FT.	
OGGED BY: J. Koch/P. Wagner	WELL DEVELOPMENT DATE	E: .	SIT	E: 1466, South Fuel F	arm
SAMPLE SAMPLE SAMPLE HEADSPACE	SOIL/ROCK DESC AND COMME Continued from	NTS	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/8-IN	WELL DATA
1.8/2	SAND: Light pink, fine- to coar gravel.	-	SW	27,35,42,44	
5 -	NO RECOVERY			22,24,38,46	
0.0/2 N/	NO RECOVERY			100	
5 - 1.8/2 6.0	SAND: Light pink, fine- to medi	um-grained.	SP	32,38,42,46	
1.8/2 32.	SAND: Peach to red, fine- to m saturated.	nedium-grained,	SP	38,50	
5 - 1.8/2 53.	SAND: Peach, medium- to coars well-sorted, saturated.	se-grained,	SP	NOT OBTAINED	
p					
5—					
5—					
0					
5					

LIENT: SOUTHNAVE CONTRACTOR: Groun ETHOD: 4.25" HSA COC ELEV.: 187.76 F OGGED BY: J. Willia L. LABORATORY	dwater P	rotecti	on Inc. CASE SIZE: 4 inches MONITOR INST.: OVA WELL DEVELOPMENT I		DATE STARTED: 5 SCREEN INT.: 125			COMPLTD: 5/27/	92
ETHOD: 4.25" HSA OC ELEV.: 187.76 F OGGED BY: J. Willia	T. ms/P. Wa	gner	CASE SIZE: 4 inches MONITOR INST.: 0VA				PROTE		92
OC ELEV.: 187.76 F OGGED BY: J. Willia	ms/P. Wa		MONITOR INST.: OVA		SCREEN INT.: 125	-140 FT	PROTE		
OGGED BY: J. Willia	ms/P. Wa							ECTION LEVEL: D	
			WELL DEVELOPMENT (TOT DPTH: 140FT.		DPTH	TO ¥ 131.3 FT.	
LABORATORY W	RECOVERY	e Ce	. 1	DATE:			SITE:	1466, South Fuel F	arm .
		HEADSPACE (ppm)	SOIL/ROCK (AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC SYNBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1 1 1		N.R.						POSTHOLE	
5—	1.3/2		SILTY SANDY CLAY: Red, of plasticity.	orange, li	ght gray, low		CL	19,22,24,27	
10-	1.6/2	0.0	SAND: Orange, fine- to me silt, mica and heavy minera		SM	5,7,10,8			
15	1.3/2	0.0	SAND: Light orange, peach, fine— to medium—sand, silty, trace heavy minerals, mica, some clayey sand, and streaks of silty clay. SAND: Light gray, pink to red, medium— to coarse—grained with little very coarse—grained, small gravel, trace mica and heavy minerals.				SP	2,5,6,91	21 21 21 2
20-	1.5/2	0.0				• • •	SW	11,13,11,15	"
25—	1.4/2	2.0	SAND: Light gray to buff, heavy mineral and mica.				SP	6,7,14,12	
30	1.7/2	0.0						5,10,11,15	
35—	1.4/2	0.0	SAND: Light gray to buff, coarse-grained, trace he			• • •	SW	6,8,14,16	
40	1.5/2	2.0	SAND: Light gray to buff, with a trace of coarse-t mica, and heavy minerals.	o very c		• • •	SW	14,20,22,24	
45—	1.6/2	2.0	SAND: Light gray, peach, clay, trace heavy minerals	silty to f	ine-grained, little		SM	8,10,15,17	
50-	1.8/2	3.0	SAND: Light gray, fine- to very coarse-grained, mic				SP	7,10,11,12	

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1466-20	BORI	NG NO. SFF-SB-20	:
CLIENT: SOUTHNAVFACENGCOM		· ·	PROJ	ECT NO: 7518-30	
CONTRACTOR: Groundwater Protection	Inc.	DATE STARTED: 5/26/9)2	COMPLTD: 5/27/9:	2
METHOD: 4.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 125-140	FT PROT	ECTION LEVEL: D	
TOC ELEY: 187.76 FT.	MONITOR INST.: OVA	TOT DPTH: 140FT.	DPTH	TO ¥ 131.3 FT.	
LOGGED BY: J. Williams/P. Wagner	WELL DEVELOPMENT DATE:	· ·	SITE:	1466, South Fuel Far	rm
SAMPLE SAMPLE COVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	GE 1	SYMBOL SOIL CLASS	BLOWS/8-IN	WELL DATA
1.B/2 2.0 SAI	ND: Light pink, peach, light gray, arse-grained, trace small gravel,	medium- to		10,15,12,14	
60 - 1.5/2 0.0 mic	a.			8,12,14,13	"2" 2" 2" 2"
	ND: Light gray to buff, medium— arse—grained, with trace very co all gravel, mica, and heavy minera	arse-grained,	SW	12,14,14,18	1212121
1.7/2	an graver, mica, and neavy minere	3.3.		14,18,23,34	
75 - 1.4/2 1.0				12,17,22,28	
	NDY SILTY CLAY: Light gray to arse-grained sand, small gravel,		_ sc	W.R.12,16	
	ND: Light gray, very fine— to me ice mica, heavy minerals.	dium-grained,	SP	14,25,35,39	
	ND: Light gray, very fine- to cooce mica and heavy minerals.	arse-grained,	. • SW	19,24,32,50	A
	ND: Light gray, medium-grained, ca and heavy minerals.	well-sorted, trace	SP	12,22,26,33	1212121
100-117/2 0.0				25,34,34,36	
	ND: Light gray, orange to pink, r arse-grained, trace heavy miner			25,32,38,42	
110-1	PAGE 2 of 14	66-20 ABB ENV	SW J) TAL SERVICES.	INC.

TITLE: NAS Whiting Fi	eid			LOG of	WELL: WHF-1466-2	0	BORI	NG NO. SFF-SB-20)
LIENT: SOUTHNAVE	CENGO	ЮМ					PROJ	ECT NO: 7518-30	
CONTRACTOR: Ground	water P	rotect	ion Inc.		DATE STARTED: 5	/26/92		COMPLTD: 5/27/	92
4ETHOD: 4.25" HSA			CASE SIZE: 4 inches		SCREEN INT.: 125	-140 FT	PROTE	CTION LEVEL: D	
TOC ELEV.: 187.76 FT			MONITOR INST.: OVA		TOT DPTH: 140FT.		DPTH	TO ♀ 131.3 FT.	· · · · · · · · · · · · · · · · · · ·
LOGGED BY: J. William	s/P. Wa	gner	WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
E LABORATORY LA SAMPLE ID. SAMPLE SAM	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.5/2	6.0	SAND: As above, with trac feet.	ce large q	uartz gravel at 112	• • •	SW	24,31,33,40	
115	1.3/2	9.0	SAND: Orange to yellow, f trace heavy minerals and		parse-grained,		SW	22,25,39,50	
20-	1.5/2	6.0	SAND: As above, with trac	ce clay.		• • •	SW	22,32,46,50	
125	1.7/2	5.0	SAND: Orange, coarse-gr very coarse grains, trace heavy minerals, clay.	ained with e small qu	n little medium and artz gravel, mica,		SP	22,34,40,50	
30-	1.8/2	20.0	SAND: Light gray, coarse some small gravel, trace r heavy minerals, saturated	medium-gr			SP	12,14,17,28	
135—									
145—		-						·	
150—									
155—									
160									
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TTLE: NAS Whiting Fie	ela			LOG of	WELL: WHF-1466-	-20	BOR	ING NO. SFF-SB-4	7
LIENT: SOUTHNAVFA	CENGO	СОМ					PRO	ECT NO: 7518-40	
ONTRACTOR: Ground	vater f	rotec	tion Inc.		DATE STARTED:	5/10/92		COMPLTD: 5/10/	92
IETHOD: Mud Rotary			CASE SIZE: 488 inch	es	SCREEN INT.: 13	9-144 FT	PROT	ECTION LEVEL: D	
OC ELEY: 190.03 FT.			MONITOR INST.: OVA		TOT DPTH: 144F	т.	DPTH	TO ♀ 101 FT.	
OGGED BY: J. Koch			WELL DEVELOPMENT	DATE:			SITE:	1466, South Fuel F	arm
SAMPLE ID. W	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT: DMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	-							POSTHOLE	
5—	1.0/2	0.0	CLAYEY SAND: Red to gold	d, fine-gra	ained.		sc	6,12,13,18	
0-1	1.2/2	0.0	SAND: Red to tan, trace c	lay.	·		sc	6,12,12,15	
5—	1.5/2	0.0	SAND: Red to tan, medium-	grained, i	well-sorted.		SP	7,8,8,9	
0-]	1.0/2	0.0	SAND: Red to brown, fine- well-graded.	to coarse	e-grained,	• • •	SW	8,10,12,12	
5—	1.8/2	0.0	SAND: Red, very fine-grain CLAY: Brown, trace silt.	ned to silt			CL	5,6,6,9	
	1.3/2	0.0	SAND: Tan, medium-graine	d, well-so	rted.		SP	7,7,10,12	
5-	1.5/2	0.0	SAND: White, medium-grain	ed, well-s	orted.		SP	6,8,11,14	
0	1.8/2	1.0	SAND: White, very fine- to	fine-grai	ned.		SP	9,12,12,18	
5	1.8/2	1.0						6,9,9,12	
0-	1.0/2	0.0	CLAY: Pink, silty.				CL	9,10,12,15	

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-1		BORI	NG NO. NFF-SB-4	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 1/	7/92		COMPLTD: 1/7/92	
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 82'-	-97'	PROT	ECTION LEVEL: D	
TOC ELEV.: 168.51 FT.	MONITOR INST.: OVA	TOT DPTH: 97FT.		DPTH	TO ♀ FT.	
LOGGED BY: M. Jaynes	WELL DEVELOPMENT DATE:			SITE:	North Fuel Farm	
DEPTH FIT. SAMPLE SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	FION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-					POSTHOLE	
	AYEY SAND: Orange, very fine to d clay.			sc	6,5,7,8	
	NDY CLAY: Light orange, orange ottled, little fine to medium graine			SC	3,6,11,12	1 2 2 2 1
15 1.5/2 0.0					3,7,14,14	1 2 1 2 1 2
1	.AYEY SAND: Grading to silty san ne to fine grained some to little s			SC	9,10,11,12	1 2 2 1 2 1
	AND: Light gray, fine to medium grained, silt, trace clay, mica,			SP	5,5,6,5	
1.4/2 0.0 fi	AND: Light gray, medium to coarsone grained, little quartzite gravel, nerals.		• • •	SW	5,6,9,8	1212121
1.3/2 0.4	AND: Light gray to buff, medium t tle very fine grained, some grave inerals, mica.		• • •	SW	10,12,14,14	
1.7/2 0.2 g	AND: Gray, medium grained, some rained, trace small gravels, mica, lt.		• • •	SW	10,12,15,16	
1.5/2 0.6	AND: Light gray, very fine to fine edium grained, 2" stringer of san oarse sand, mica, heavy minerals.	dy silty clay, trace		SP	11,11,12,12	
	AND: Light gray, fine to coarse goarse grained, heavy mineral, mic		• • •	SW	15,17,19,22	
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CLIENT: SOUTHNAVFACENGCOM CONTRACTOR: Groundwater Protection DATE STARTED: 1/7/92 COMPLTD: 1/7/92 METHOD: HSA CASE SIZE: 4 inch SCREEN INT.: 82'-97' PROTECTION LEVEL: D TOC ELEV.: 188.51 FT. MONITOR INST.: OVA TOT DPTH: 97FT. DPTH TO \$ FT. LOGGED BY: M. Jaynes WELL DEVELOPMENT DATE: SITE: North Fuel Farm SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1 1.4/2 0.8 SAND: Light gray, very coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica, sorting good. 1.4/2 0.6 SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. 1.4/2 6.7 SAND: Medium grained, well sorted, trace mica, heavy minerals, mica, sorting good. SAND: Medium grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy minerals, mica, sorting grained, well sorted, trace mica, heavy mica, sorting grained, well sorted, trace mica, heavy mica, sorting grained, well sorted, trace mica, heavy mica, sorting grained, well sorted, trace mica, heavy mica, so	WELL DATA
METHOD: HSA CASE SIZE: 4 inch SCREEN INT.: 82'-97' PROTECTION LEVEL: D PROTECTION LEVEL: D DPTH TO \$ FT. DPTH TO \$ FT. SITE: North Fuel Farm SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1 1.4/2 0.6 SAND: Light gray, very coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Hot medium grained, trace heavy minerals, mica, sorting good. SAND: Hot medium grained, trace heavy minerals, mica, sorting good. SAND: Hot medium grained, trace heavy minerals, mica, sorting good. SAND: Hot medium grained, trace heavy minerals, mica, sorting good. SAND: Hot medium grained, trace mica, heavy SP 21,25,28,31	
TOC ELEV.: 168.51 FT. LOGGED BY: M. Jaynes WELL DEVELOPMENT DATE: SITE: North Fuel Farm SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1 1.4/2 0.6 SAND: Light gray, very coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Medium grained, well sorted, trace mica, heavy SP 35.36.44.50	WELL DATA
SITE: North Fuel Farm SITE: North Fuel Farm	WELL DATA
SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1 1.4/2 1.0 SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good.	WELL DATA
SAND: Light gray, very coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: SAND: Medium grained, well sorted, trace mica, heavy SP 35 36 44 50	WELL DATA
SAND: Light gray, very coarse grained, trace heavy minerals, mica, gravel. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica. SAND: Light gray, very fine to coarse grained, trace heavy minerals, mica. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: SAND: Medium grained, well sorted, trace mica, heavy SP 35 36 44 50	77
1.4/2 1.0 SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Fine to medium grained, trace heavy minerals, mica, sorting good. SAND: Medium grained, well sorted, trace mica, heavy SP 35.36.44.50	HH
1.5/2 0.6 mica, sorting good. SAND: Medium grained, well sorted, trace mica, heavy SP 35.36.44.50	
35 38 44 50	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
5 - 1 1.4/2 18.0 31,44,45,48	
SAND: Light gray to buff, fine to medium grained, little coarse to very coarse grained, 1-2" stringers of light pink sandy clay, trace heavy minerals, mica.	
SAND: Light gray, medium grained, little very coarse to coarse grained, trace gravel, heavy minerals, mica, wet.	
2.0/2 -	
05—	

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-2		BORING N	10. NFF-SB-13	
CLIENT: SOUTHNAVFACENGCOM				PROJECT	NO: 7518-40	
CONTRACTOR: Groundwater Protection		DATE STARTED: 1/08	/92	C	OMPLTD: 1/08/92	2
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 70'-85	5' F	PROTECTI	ON LEVEL: 0	
TOC ELEV.: 157.44 FT.	MONITOR INST.: OVA	TOT DPTH: 85FT.	C	OPTH TO	FT.	
LOGGED BY: M. Jaynes	WELL DEVELOPMENT DATE:			SITE: Nor	th Fuel Farm	
RECOVERY HEADSPACE (PPB)	SOIL/ROCK DESCRIPT AND COMMENTS	TION	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					POSTHOLE	
2.0/2 0.0 CI	AY: Red, fine grained, silty sand.			CL	3,3,4,3	
10					6,5,7,8	
15 1.3/2 0.0					6,8,17,20	
	AND: Orange, medium to coarse g th some silt.		•••	SP	6,5,7,10	
25 1.1/2 0.0	•				9,11,12,12	
30— 1.1/2 0.0 S	AND: White, fine to medium graine	d, well-sorted.		SP	10,11,14,14	
1.8/2 0.0	AND: Orange, white, fine to mediu ell-sorted, with 6" lens of white o			SP	2,6,9,12	
1.0/2 0.0	AND: White, medium grained, well-	sorted.		SP	12,10,13,11	
	AND: White, pink, fine to medium (ell-sorted.	grained,		SP	12,14,14,14	
50 - 1.8/2 0.0					11,12,14,15	
55	PAGE 1 of 1	467-2 ABB EN	VIRON	SP MENTAL	L SERVICES.	INC.

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-2	BORING NO. NFF	-SB-13
LIENT: SOUTHNAVFACENGCOM	1		PROJECT NO: 751	8-40
ONTRACTOR: Groundwater Prot	tection	DATE STARTED: 1/08/92	COMPLTD	1/08/92
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 70'-85'	PROTECTION LEVE	EL: 0
OC ELEV.: 157.44 FT.	MONITOR INST.: OVA	TOT DPTH: 85FT.	DPTH TO \$ FT.	
OGGED BY: M. Jaynes	WELL DEVELOPMENT DATE:		SITE: North Fuel F	arm
SAMPE TO SAMPE THE SAMPE T	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	I'HO SYM	SOIL CLASS	Z WELL DATA
1.8/2 410	LSAND: White prance medium to coa		SP 10,10,14	.18
2.0/2 50	0.0		10,10,14	,18
5— 1.1/2 0.	.0 SAND: White, fine to medium grained	, well-sorted.	SP 10,12,14	,12
0 1.3/2 90	0.0		14,20,24	.27
5 - 1.8/2 50	SAND: White, coarse grained, well-s gravel size quartz.	orted, some	SP 15,17,17,	19
0 - 2.0/2 1.0	SAND: Red, medium to coarse graine some gravel size quartz, saturated.		SP Wt. of R	od
5—				
0-1				
5—				
0-1				
5—				

TITLE: NAS Whiting Field North Fuel Farm	LOG of WELL: WH	HF-1467-3	BORING NO. NFF-SB-12	
LIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	DATE S	TARTED: 1/8/92	COMPLTD: 1/8/92	?
METHOD: HSA CAS	E SIZE: 4 inch SCREEN	INT.: 80'-95'	PROTECTION LEVEL: D	
FOC ELEV: 157.25 FT. HON	ITOR INST.: OVA TOT DP	TH: 95FT.	OPTH TO \$ FT.	
OGGED BY: M. Jaynes WEL	DEVELOPMENT DATE:		SITE: North Fuel Farm	
DEPTH OFFILE SAMPLE SAMPLE (PDIII)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS Brows/e-1V	WELL DATA
5— 0.5/2 O.O CLAY: Or	ange with grey streaks, hard.		SC 12,15,15,17	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
10 3.0 SAND: Pid	ık, medium grained, loose.		SP 8,10,10,10	
1	Pink, medium grained, loose. Pink, dark orange, red and pale gray, layered, sined, loose.		SP 10,12,15,15	1 2 2 2
20 - 0.6/2 0.0 SAND: YE	fllow to orange, medium to coarse g	rained.	SW 10,10,10,12	
25 - 4.0 SAND: Gr mica.	ay-brown, medium to large grained,	some	SW 8,8,8,10	
30 - 10.0 SAND: BI mica.	own, medium to coarse grained, loo	se, some	9,10,10,12	
35 - 15.0			12,14,14,15	
40 - 37.0 SAND: S	ame as above with yellow streaks.	• • •	SW 14,15,15,16	2 2 2 2 2
45————————————————————————————————————	ame as above, no yellow streaks, st	rong	SW 8,10,10,120	1212121
50 304.0 SAND: B	rown and pink, medium to coarse gr	ained.	15,16,18,18	
55	PAGE 1 of 1467-3		18,20,20,19 IMENTAL SERVICES	

TLE: NAS Whiting Field North Fuel Fa	arm	LOG of WELL: WHF-	1467-3	BORI	NG NO. NFF-SB-12	
IENT: SOUTHNAVFACENGCOM		,		PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STAR	TED: 1/8/92		COMPLTD: 1/8/92	
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN IN	T.: 80'-95'	PROTE	CTION LEVEL: D	
OC ELEV.: 157.25 FT.	MONITOR INST.: OVA	TOT DPTH:	95FT.	DPTH	TO FT.	
OGGED BY: M. Jaynes	WELL DEVELOPMENT D	ATE:		SITE:	North Fuel Farm	
SAMPLE SAMPLE COVERY (Ppm)	SOIL/ROCK D AND CON Continued f	MENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND: Brown with dark red	bands, fine to coarse		SW		11
2.0			1		15,18,18,20	12121212
5 1.0/2 220.0					22,25,25,27	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
	ND: Dark red and dark b ained, strong odor (PCE)			SP	20,20,22,20	
5 20.0					Wt. of Rod	
1	AND: Multi-colored, fine to lor, wet.	o coarse grained, slig	ht	SW	Wt. of Rod	
5—					8,8,10,12	
0—						
5—						
0						
95—						
	PAGE	•		NMEN		

ITLE: NAS Whiting Field	LOG of WEL	L: WHF-1467-4	BOR	ING NO. NFF-SB-3	2
LIENT: SOUTHNAVFACENGCOM			PRO	JECT NO: 7518-40	
ONTRACTOR: Groundwater Protection	DA	E STARTED: 1/09/9	2	COMPLTD: 1/09/	92
ETHOD: HSA CASE	SIZE: 4 inch SC	REEN INT.: 88'-103'	PROT	ECTION LEVEL: D	
		T DPTH: 103FT.		ITO FT.	
1	DEVELOPMENT DATE:		1	: North Fuel Farm	
RECOVERY FABSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	11THOLOGIC	SYMBOL SOIL CLASS	BLOWS/6-IN	
				POSTHOLE	<u> </u>
5 1.8/2 0.0 SAND: Ligh	ID: Light reddish brown, fine grained, silty.			7,4,10,9	
	LAYEY SAND: Tan to reddish brown, fine to coarse rained, silty.			11,9,15,14	
5 1.4/2 0.0 CLAYEY SA	CLAYEY SAND: Reddish brown to pink, fine grained,		_ sc	2,5,5,5	
0 - 1.8/2 0.0 CLAYEY S/	CLAYEY SAND: Light reddish brown to pink, fine grained.		sc sc	4,4,5,5	
5 - 1.8/2 0.0 SAND: Light	GAND: Light to dark pink, red, fine to medium grained,		SM	8,9,8,5	
0 - SAND: Off-well-sorter	-white, fine grained, trace he d.	avy mineral,	SP	10,11,16,15	
1.4/2 1.0 SAND: Off-trace hear	-white to pink, fine to coarse vy mineral.	11	SW	9,17,14,10	
	SAND: Off-white, pink, orange, fine to coarse grained some quartz gravel, trace heavy mineral.		• 4	9,10,16,15	
	-white, pink, red, fine to coar tz gravel, trace heavy minera		SW	8,9,10,12	
1.2/2 0.0 SAND: Offmineral.	-white, fine to medium graine	d, trace heavy	SP	10,11,14,17	

ITLE: NAS Whiting Field	L06 of	WELL: WHF-1467-4	BORING	NO. NFF-SB-3	2
LIENT: SOUTHNAVFACENGCOM			PROJEC	CT NO: 7518-40	
ONTRACTOR: Groundwater Protectio	1	DATE STARTED: 1/09/92		COMPLTD: 1/09/	92
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 88'-103'	PROTEC	TION LEVEL: D	
OC ELEV.: 174.64 FT.	MONITOR INST.: 0VA	TOT DPTH: 103FT.	DPTH TO	DŞ FT.	
OGGED BY: C. Douse	WELL DEVELOPMENT DATE:		SITE: N	orth Fuel Farm	
RECOVERY (PDIII)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	THOI MYS	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	AND: Off-white, fine grained, well- eavy mineral, mica.		SP	12,14,15,17	
3 	AND: Off-white, fine to medium gra neral, mica.	lined, trace heavy	SP	17,16,19,21	
_ 	_AYEY SAND: Light gray to pink, fi rained.	ine to coarse	SC SC	12,16,17,15	
J	LAYEY SAND: Off-white to pink, fir rained.	ne to coarse	SC SC	10,12,18,20	
_	AND: Off-white, fine grained, well- eavy mineral, mica.	sorted, trace	SP	19,20,21,26	
	AND: Pink to reddish brown, medium rained.	n to coarse	• SW	29,32,37,38	
	AND: Off—white to pink, very fine g ell—sorted, trace heavy mineral, sm		SP	15,18,34,36	
3 1 2 1 4 4 / 2 1	AND: Yellow to orange, fine to coa ace heavy mineral.	arse grained,	• SW	12,18,25,26	
	LAYEY SAND: Brown, red, yellow, t rained, some quartz gravel, satura		SC	5,6,9,12	
5—					<u>L</u>
		-			

TLE: NAS Whiting Field		LO	G of 1	WELL: WHF-1467-6		BOR	ING NO. NFF-SB-3	34
IENT: SOUTHNAVFACENG	СОМ					PRO	IECT NO: 7518-40	
NTRACTOR: Groundwater	Protect	on		DATE STARTED: 1/	10/92		COMPLTD: 1/10/	92
THOD: HSA		CASE SIZE: 4 inch		SCREEN INT.: 88'-	-103'	PROT	ECTION LEVEL: D	
OC ELEV.: 176.54 FT.		MONITOR INST.: OVA		TOT OPTH: 103FT.		DPTH	TO \$ FT.	
OGGED BY: C. Douse		WELL DEVELOPMENT DATE	E :			SITE	North Fuel Farm	
S SAMPLE TO SAMP	HEADSPACE (ppm)	SOIL/ROCK DESC AND COMMEN		ON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	i i
]							POSTHOLE	Z
5 - 1.5/2	0.0	CLAYEY SAND: Orange, fine to	mediu	m grained.		SC	1,2,2,3	
1.5/2	0.0	CLAYEY SAND: Brick red, fine t	to med	dium grained.		SC .	5,5,7,8	
5	0.0						3,7,9,10	
1.8/2	0.0	CLAYEY SAND: Dark orange ov fine to medium grained	er ora	ange over gold,		SC	7,10,12,10	
5 - 1.3/2	0.0	SANDY CLAY: Gray, orange, re- plasticity, moist.	d. mot	tled, soft, poor		sc	5,6,8,9	
1.3/2	0.0	SANDY CLAY: Gray, light red, m plasticity, low sand content.	nottied	d, soft, poor		SC	3,6,9,11	
5 - 1.0/2	0.0	SAND: White and pink banded, loose, clayey near top.	fine to	o medium grained,		SC	7,7,6,7	
0 - 1.3/2	0.0	CLAYEY SAND: White and pink, loose.	fine t	o medium grained,		sc	6,7,8,10	
5 0.8/	2 4.0	SAND: White and pink banded, loose.	fine t	o medium grained,		SP	10,11,11,11	!
0 0.9/	2 5.0						9,10,13,14	:

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-6		BORI	NG NO. NFF-SB-34	
CLIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	n	DATE STARTED: 1/1	0/92		COMPLTD: 1/10/92	
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 88'-	103'	PROTE	CTION LEVEL: D	
TOC ELEV.: 176.54 FT.	MONITOR INST.: OVA	TOT DPTH: 103FT.		DPTH	TO ♀ FT.	
LOGGED BY: C. Douse	WELL DEVELOPMENT DATE:			SITE:	North Fuel Farm	
CECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	AND: White with thin black to grey rained, loose.	bands, fine		SP	5,7,6,11	
1.8/2	AND: White, grey near top, fine gr	ained, loose.		SP	7,7,9,11	
1.2/2 2.0	AND: White, fine to medium grained	l, loose.	/ (c. (c.)	SP	10,17,16,15	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LAYEY SAND: Dark red, gold, yelloottled, fine to medium grained.	ow, white, all		sc	6,6,8,10	
	AND: Pink, dark red, orange, light anded, fine grained, loose.	yellow, white, tan		SP	9,10,12,11	
	AND: White, some shaded pink, ver rained, loose.	y lite, fine		SP	12,15,21,20	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AND: Red, pink, white banded, fine rained, loose.	to coarse	• • •	SW	13,22,25,27	
1.5/2 2.0	AND: Dark pink, red, grey, gold, yo anded, fine to coarse grained, ov cose, fine grain moist.		• • •	SW	14,16,14,15	
	AND: Tan to grey, fine to medium aturated.	grained,		SP	7,9,10,9	
05—						H

			Farm LOG	of WELL: WHF-1467-	6D		NG NO. NFF-SB-3	
LIENT: SOUTHNAVF	ACENGO	СОМ				PROJ	ECT NO: 7518-40	
ONTRACTOR: Ground	iwater F	Protect	on	DATE STARTED:			COMPLTD: 5/24/	92
ETHOD: Mud Rotary			CASE SIZE: 488 inches	SCREEN INT.: 97	'-102'	PROTE	CTION LEVEL: D	
OC ELEV.: 166.23 FT	•		MONITOR INST.: OVA	TOT OPTH: 102FT			TO ♀ FT.	
OGGED BY: A. Stod	ghill		WELL DEVELOPMENT DATE:	• .		SITE:	North Fuel Farm	
L LABORATORY Y LABORATORY X AWPLE ID. SAMPLE SOLUTION OF THE STATE OF THE SAMPLE SOLUTION O	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		0.0					POSTHOLE	E" 4" 4
5—	1.0/2	1 / / 1	SILTY SAND: Dark red-brown, fin clay.	e grained, trace		SM	2,3,4,4	
io - -	1.5/2	0.0					14,15,21,22	
15—	1.5/2	20.0	SAND: Red-brown to gray layers	, fine grained.		5M	12,14,14,17	1
	1.5/2	NA	CLAYEY SAND: Light gray, fine g	rained.		sc	6,8,10,12	
25—	0.6/2	20.0	SAND: Light gray, fine to medium	grained.		SP	9,10,11,8	, , , , , , , , , , , , , , , , , , ,
	0.8/2	46.2					8,9,8,8	
5—	0.8/2	37.6	SAND: As above, with quartzitic (gravel.		SP	9,11,11,14	
0—	1.3/2	398.0	SAND: Red-brown to light gray t medium grained with some quartz		• • •	SW	5,9,14,14	
45	0.8/2	952.0					14,14,17,21	
50-	0.8/2	675.6					15,20,25,29	

ITLE: NAS Whiting Field N	lorth Fuel F	arm	LOG of	WELL: WHF-1467-6	ם	BORIN	NG NO. NFF-SB-3	
LIENT: SOUTHNAVFACEN	GCOM					PROJE	CT NO: 7518-40	
ONTRACTOR: Groundwate	r Protection	1		DATE STARTED: 5	/24/92		COMPLTD: 5/24/	92
ETHOD: Mud Rotary	· · · · · · · · · · · · · · · · · · ·	CASE SIZE: 4&8 inch	es	SCREEN INT.: 97	-102'	PROTE	CTION LEVEL: D	
OC ELEV.: 166.23 FT.		MONITOR INST.: OVA		TOT DPTH: 102FT.		DPTH T	TO Ţ FT.	
OGGED BY: A. Stodghill		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
SAMPLE TO SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	MMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
0.87	/2 >1000						14,18,21,23	
0 - 0.8/	2 >1000 S.	AND: Light red-brown to	white, fin	e grained.		SP	20,22,26,28	
0.8/	/2 >1000						23,42,44,46	
0 - 0.8/	/2 >1000						23,34,36,41	
5	<u>'2</u> S	AND: Dark red-brown to	light gray	, fine grained.		SP	10,11,13,14	
0.0,	- C	LAYEY SAND: Light gray icaceous, wet.	to light b	rown, fine grained,		SC	6,5,5,7 Wt. of Rod	
2.0,		LAY: Light brown to dark et.	gray, sti	ff, micaceous,		CL	4,6,5,6	
	/2 3200 h	AND: Light brown, fine to eavy minerals, wet.				SP SW	10,8,8,14	
0.5.	⊢ c	AND: Grayish—orange to oarse grained, some grav uartzitic.			• . •		12,24,20,19	
5—								

CONTRACTOR: Groundwater Protection METHOD: HSA CASE SIZE: 4 inch SCREEN INT.: 70'-85' PROTECT CLEY.: 157.48 FT. MONITOR INST.: OVA TOT DPTH: 85FT. DPT LABORATORY LAB	COMPLTD: 1/11/92 DIECTION LEVEL: D TH TO \$\forall \text{FT}. TE: North Fuel Farm BLOWS/6-IN
AETHOD: HSA CASE SIZE: 4 inch SCREEN INT.: 70'-85' PROC ELEV.: 157.48 FT. MONITOR INST.: OVA TOT DPTH: 85FT. DP* NELL DEVELOPMENT DATE: SITE ABORATORY SAMPLE ID. SAMPLE White fine to medium or ained well-sorted well-sorted site.	TH TO \$ FT. "E: North Fuel Farm
TOC ELEV.: 157.48 FT. OPTION INST.: OVA MONITOR INST.: OVA MELL DEVELOPMENT DATE: SITE CABORATORY A SOUTH OF THE SETT. DP 10 10 10 10 10 10 10 10 10 10 10 10 10	TH TO ♀ FT. 'E: North Fuel Farm
HAD L LABORATORY WELL DEVELOPMENT DATE: SITURD COMMENTS	E: North Fuel Farm
SAND: Orange, medium to coarse grained, well-sorted 1.0/2 0.0 SAND: Orange, medium oranged well-sorted 1.1/2 0.0 SAND: White fine to medium oranged well-sorted	
5	MELL DATA
2.0/2 0.0 1.0/2 0.0 1.3/2 0.0 SAND: Orange, medium to coarse grained, well-sorted with some silt.	
2.0/2 0.0 1.0/2 0.0 1.0/2 0.0 1.3/2 0.0 SAND: Orange, medium to coarse grained, well-sorted with some silt.	POSTHOLE
1.0/2 0.0 1.3/2 0.0 SAND: Orange, medium to coarse grained, well-sorted with some silt.	3,3,4,3
20— 1.3/2 0.0 SAND: Orange, medium to coarse grained, well-sorted with some silt. 1.1/2 0.0 SAND: White fine to medium grained, well-sorted.	6,5,7,6
1.8/2 0.0 with some silt. 25 - 1.1/2 0.0 SAND: White fine to medium grained well-sorted.	6,8,17,20
30 SAND: White fine to medium grained well-sorted.	6,5,7,10
30 0.0 SAND: White, fine to medium grained, well-sorted.	9,11,12,12
	10,11,14,14
35— 1.8/2 0.0 SAND: Orange, white, fine to medium grained, well-sorted, with 6" lens of white clay, very plastic.	2,6,9,12
40————————————————————————————————————	12,10,13,11
SAND: White, pink, fine to medium grained, well-sorted.	12,14,14,14
1.8/2 0.0	11,12,14,15

TLE: NAS Whiting Field			LOG of WELL: WHF-1467	- 7	BORING NO. NFF-SB-13 PROJECT NO: 7518-40		
IENT: SOUTHNAVFACE							
ONTRACTOR: Groundwa	ter Protect		DATE STARTED		-	COMPLTD: 1/11/9	2
ETHOD: HSA	· · · · · · · · · · · · · · · · · · ·	CASE SIZE: 4 inch	SCREEN INT.: 7			CTION LEVEL: 0	····
OC ELEV.: 157.48 FT.		MONITOR INST.: OVA	TOT DPTH: 85FT	ſ .		TO \$ FT.	
OGGED BY: C. Douse		WELL DEVELOPMENT D	ATE:		SITE:	North Fuel Farm	
L LABORATORY L	置 里 Continued from P		IMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
- 1.0	410.0	SAND: White, orange, medium well-sorted.	i to coarse grained,		SP	10,10,14,18	
0 - 2.	50.0					10,10,14,18	
5—]	0.0	SAND: White, fine to medium	grained, well-sorted.		SP	10,12,14,12	
0 - 1	90.0					14,20,24,27	
5	50.0	SAND: White, coarse grained gravel size quartz.	d, well-sorted, some		SP	15,17,17,19	
0 2.	0/2 1.0	SAND: Red, medium to coars some gravel size quartz, sa			SP	Wt. of Rod	
5—							目
0—							
5—							
					-		
0-							
05—							

TITLE: NAS Whiting Field North Fuel Fa	rm LOG of	WELL: WHF-1467-7D		BORI	NG NO. NFF-SB-12	
CLIENT: SOUTHNAVFACENGCOM		······································		PROJECT NO: 7518-40		
CONTRACTOR: Groundwater Protection		DATE STARTED: 5/2	3/92		COMPLTD: 5/23/9	2
METHOD: Mud Rotary	SCREEN INT.: 124'-	129'	PROTE	CTION LEVEL: D		
TOC ELEV.: 158.18 FT.	MONITOR INST.: OVA	TOT OPTH: 129FT.		DPTH	TO Ţ FT.	
LOGGED BY: P. Wagner				SITE:	North Fuel Farm	
CETH FT. SAMPLE SAMPLE COVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	TION	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
5— 0.5/2 0.0 CL	AY: Orange with grey streaks, ha	ird.		CL	12,15,15,17	
10 3.0 SA	ND: Pink, medium grained, loose.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		SP	8,10,10,10	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND: Pink, dark orange, red and p e grained, loose.	ale gray, layered,		SP	10,12,15,15	
20 - 0.6/2 0.0 SA	ND: Yellow to orange, medium to	1.	• •	SW	10,10,10,12	
25 4.0 SA	ND: Gray-brown, medium to large a.	- T	• •	SW	8,8,8,10	
30 10.0 SA	ND: Brown, medium to coarse gra a.	I.	• • •	SW	9,10,10,12	
35 - 2.0/2 15.0					12,14,14,15	
37.0 SA	ND: Same as above with yellow s	streaks.	• • •	SW	14,15,15,16	
1	ND: Same as above, no yellow st or.	treaks, strong	• • •	SW	8,10,10,120	1212121
50 2.0/2 304.0 SA	ND: Brown and pink, medium to c	oarse grained.	• • •	SW	15,16,18,18	
55				SW /	18,20,20,19	

_	L06 o	f WELL: WHF -1467-7D	BORING	NO. NFF-SB-12	
LIENT: SOUTHNAVFACENGCOM			PROJECT	NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 5/23/	92 (COMPLTD: 5/23/92)
ETHOD: Mud Rotary	CASE SIZE: 4&8 inches	SCREEN INT.: 124'-129	PROTECT	ION LEVEL: D	
OC ELEV.: 158.18 FT.	MONITOR INST.: OVA	TOT DPTH: 129FT.	OPTH TO	Ş FT.	
DGGED BY: P. Wagner	WELL DEVELOPMENT DATE:		SITE: No	rth Fuel Farm	
RECOVERY HEADSPACE (Ppm)	SOIL/ROCK DESCRIP AND COMMENTS Continued from P	NOIT AGE 1	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND: Brown with dark red bands, ined.	fine to coarse		15,18,18,20	"
5				22,25,25,27	
1	ND: Dark red and dark brown, fi ined, strong odor (PCE).	ne to medium	SP	20,20,22,20	
5 1.4/2 20.0				Wt. of Rod	
	ND: Multi-colored, fine to coars or, wet.	I	• SW	Wt. of Rod	1212121
5—————————————————————————————————————				8,8,10,12	
5— CL.	AY AY: Light grey to yellow brown	mottled, micaceous.	CL	-,25,27,28	

		LOG of WELL: WHF-14	167-7D	BORIN	G NO. NFF-SB-12	
LIENT: SOUTHNAVFACENGCO	M			PROJE	CT NO: 7518-40	
ONTRACTOR: Groundwater Pro	otection	DATE START	ED: 5/23/92		COMPLTD: 5/23/	92
ETHOD: Mud Rotary	CASE SIZE: 488 inch	CASE SIZE: 468 inches SCREEN INT.: 124'-129'		PROTEC	TION LEVEL: D	
OC ELEV.: 158.18 FT.	EV.: 158.18 FT. MONITOR INST.: OVA TOT DPTH: 129FT.		9FT.		O Ţ FT.	
OGGED BY: P. Wagner	WELL DEVELOPMENT	DATE:		SITE: N	orth Fuel Farm	
S AMPLE S SAMPLE THE S	AND C	DESCRIPTION MMENTS rom PAGE 2	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
25— 15— 15— 10— 10— 10— 10— 10— 10— 10— 10	CLAY CLAY SAND: Brown, medium grain well-sorted.			CL	41,54,41,33	

TITLE: NAS Whiting Field			LOG of	F WELL: WHF-1467-8	3	BOR	ING NO. NFF-SB-3	7
CLIENT: SOUTHNAVFACE	NGCOM					PRO	JECT NO: 7518-40	
CONTRACTOR: Groundwate	er Protect	ion		DATE STARTED: 1	/11/92		COMPLTD: 1/11/9:	2
METHOD: HSA	THOD: HSA CASE SIZE: 4 inch SCREEN INT.: 9			SCREEN INT.: 92	-107'	PROT	ECTION LEVEL: D	
TOC ELEV: 173.24 FT.		MONITOR INST.: OVA	MONITOR INST.: OVA TOT DPTH: 107FT.			DPTH	TO T FT.	
LOGGED BY: R. White		WELL DEVELOPMENT	DATE:			SITE	North Fuel Farm	
CEPTH CABORATORY THE SAMPLE ID. S	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							POSTHOLE	
5—	/2 0.0	CLAYEY SAND: Reddish or grained, high sand conten		e to medium		sc	1,1,1,1	121212121
10 1.4	0.0						4,4,4,3	2 2 2 2
15	0.0	CLAYEY SAND: Red, orang plasticity.	ge mottled	1, silty clay, poor		sc	4,14,13,14	
20 - 1.1.	/2 0.0	CLAYEY SAND: Pinkish wh	it e, very f	ine grained.		SC	7,6,8,8	
25	0.0	SAND: Orange and white,	fine to me	edium grained.		SP	6,17,19,21	
30 1.4	0.0						12,15,24,27	
35	0.0	SAND: Orange and white, some quartzitic pebbles.	fine to me	edium grained,		SP	7,8,14,14,	
40-1.6	0.0	SAND: White, very fine gra	ained, tra	ce heavy mineral.		SP	7,6,6,7	
45—	0.0	SAND: White, red, fine to clay stringer in middle, so				SP	10,9,10,17	
50-11.6	0.0	SAND: White, very fine to	fine grain	ned.		SP	9,9,10,14	
55			<u> </u>	67-8 ABB	ENVIRO	SP /	TAL SERVICES	INC.

ITLE: NAS Whiting Field	LOG of WELL: WH	F-1467-8	BORING N	IO. NFF-SB-37	
LIENT: SOUTHNAVFACENGCOM			PROJECT	NO: 7518-40	
ONTRACTOR: Groundwater Protection	DATE ST	ARTED: 1/11/92	C	OMPLTO: 1/11/92	
AETHOD: HSA	CASE SIZE: 4 inch SCREEN	INT.: 92'-107'	PROTECTI	ON LEVEL: 0	
TOC ELEY: 173.24 FT.	MONITOR INST.: OVA TOT DPT	H: 107FT.	DPTH TO \$	FT.	
OGGED BY: R. White	WELL DEVELOPMENT DATE:		SITE: Nort	h Fuel Farm	
SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	ND: White, very fine to fine grained, trace leral.	heavy	SP	12,12,16,15	
1.5/2 0.0 gra	ND: White, fine to medium grained, 8" over o y, very soft, good plasticity 5", over sand e to medium grained.		СН	5,4,16,17	~
	XY: Gray, very soft, good plasticity, 5" ove te, fine to medium grained.	er sand,	СН	27,29,25,27	
	ND: Red, orange, gold, white banded, mottle coarse grained some quartzitic pebbles.	ed, fine	SW	18,22,24,27	
75 - 1.3/2 0.0				13,12,11,18	
	ND: White, fine to medium grained a few qui obles.	artzitic	SP	18,21,25,28	0
5 - 1.1/2 0.0 SA	ND: White, fine to medium grained.		SP	27,31,49,50	
	ND: White, fine to medium grained, some qu bbles.	artzitic	SP	20,30,30,30	
	AYEY SAND: White, fine to medium grained, avy mineral, wet.	trace	SC	21,20,22,28	
	ND: White, red, gold, fine to medium grained turated.	d,	SP	28,27,27,36	
05—					
110					

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-8D	B0	RING NO. NFF-SB-4		
CLIENT: SOUTHNAVFACENGCOM			PRO	PROJECT NO: 7518-40		
CONTRACTOR: Groundwater Protection		DATE STARTED: 5/22/	92	COMPLTD: 5/22/92		
METHOD: Mud Rotary	CASE SIZE: 4&8 inches	SCREEN INT.: 112'-127	' PRO	TECTION LEVEL: D		
TOC ELEV.: 168.85 FT.	MONITOR INST.: OVA	TOT DPTH: 127FT.	DPT	H TO ♀ FT.		
LOGGED BY: A. Stodghill		SIT	E: North Fuel Farm			
DEPTH FT. FT. SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	LITHOLOGIC	SYMBOL SOIL CLASS	WELL DATA		
				POSTHOLE		
	AYEY SAND: Orange, very fine to I clay.	o fine grained, silt	sc sc	8,5,7,8		
	NDY CLAY: Light orange, orange, ttled, little fine to medium grained		sc sc	3,6,11,12		
15—————————————————————————————————————				3,7,14,14		
_	AYEY SAND: Grading to silty sander to fine grained some to little si	- · · · · · · · · · · · · · · · · · · ·	SC SC	9,10,11,12		
	ND: Light gray, fine to medium gr e grained, silt, trace clay, mica, l	11.1	SP	5,5,6,5		
1.4/2 0.0 fin	ND: Light gray, medium to coarse e grained, little quartzite gravel, erals.		• • SW	5,6,9,8		
1.3/2 0.4 litt	ND: Light gray to buff, medium to le very fine grained, some grave lerals, mica.		• • SW	10,12,14,14		
1 = 1 (7/2 0 2	ND: Gray, medium grained, some s ained, trace small gravels, mica, b	1.	• SW	10,12,15,16		
1.5/2 0.6 me	ND: Light gray, very fine to fine dium grained, 2" stringer of sand arse sand, mica, heavy minerals.		SP	11,11,12,12		
	ND: Light gray, fine to coarse grained, heavy mineral, mica		• • SW	15,17,19,22		
55_	PAGE 1 of 146		SW	NTAL SERVICES, INC.		

ITLE: NAS Whiting Field	LUG of	WELL: WHF-1467-80)	BORI	NG NO. NFF-SB-4	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 5/	22/92		COMPLTD: 5/22/	92
METHOD: Mud Rotary CASE SIZE: 488 inches S		SCREEN INT.: 112'-	127'	PROTE	CTION LEVEL: D	
TOC ELEV.: 168.85 FT. MONITOR INST.: OVA TO		TOT DPTH: 127FT.		DPTH	TO ♀ FT.	
DGGED BY: A. Stodghill	WELL DEVELOPMENT DATE:	-		SITE:	North Fuel Farm	
SAMPLE SAMPLE COVERY (Ppm)	SOIL/ROCK DESCRIPTI AND COMMENTS Continued from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
SAI SAI	ND: Light gray, very coarse grain erals, mica, gravel.	ed, trace heavy	• • •	SW	16,22,24,24	
	ND: Light gray, very fine to coars	se grained, trace	• • •	SW	15,19,24,29	1 2 2 2
	ND: Fine to medium grained, trace a, sorting good.	e heavy minerals,		SP	21,25,28,31	
# (4/2 67	ND: Medium grained, well sorted, t erals.	race mica, heavy		SP	35,36,44,50	1212121
1.4/2 18.0					31,44,45,48	
1.3/2 54.0 littl	ND: Light gray to buff, fine to me e coarse to very coarse grained at pink sandy clay, trace heavy m	l, 1–2" stringers of		SP	29,36,39,44	
	ND: Light gray, medium grained, li coarse grained, trace gravel, he t.			SP	20,22,26,28	
2.0/2 -					18,33,50	2" 2" 2" 2
95—				-		12121
00						N _ N _ N
05						
		·				

TITLE: NAS Whiting Field		LOG of	WELL: WHF-1	467-8D			NG NO. NFF-SB-4	
CLIENT: SOUTHNAVFACENGCOM					(0.5	PROJE	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection			DATE STAR				COMPLTD: 5/22/	92
METHOD: Mud Rotary	CASE SIZE: 4&8 inch	es	SCREEN INT	112'-12	7'	PROTECTION LEVEL: D		
TOC ELEV.: 188.85 FT.	MONITOR INST.: OVA		TOT DPTH:	27FT.			TO V FT.	
LOGGED BY: A. Stodghill	WELL DEVELOPMENT	DATE:				SITE:	North Fuel Farm	
DEPTH FT. TO STANDER SAMPLE SAMPLE SAMPLE MEADSPACE (Ppm)	SOIL/ROCK AND CO Continued	OMMENTS		Ç. Ç.	SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.5/2 SAI	NDY CLAY: Light grey t ND: Light brown, medium y.			1.			5,8,48,50	
120								
125—				9.7				
130-								
135—					-			
145—								·
150—								
155—						·		
160-								j
165—		3 of 141	•		- Company	-	TAL SERVICES	

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					LOG of	WELL: WHF-1467-9		BORI	NG NO. NFF-SB-3!	5	
LIENT: SOUTH	NAVFA	CENGC	ОМ					PROJ	PROJECT NO: 7518-30		
CONTRACTOR:	Groundw	ater P	rotect	on		DATE STARTED: 1/	12/92	COMPLTD: 1/12/92			
METHOD: HSA				CASE SIZE: 4 inch		SCREEN INT.: 85'	-100'	PROTE	ECTION LEVEL: D		
TOC ELEV.: 162	.99 FT.			MONITOR INST.: 0VA		TOT DPTH: 100FT.		DPTH	ТО Т ГТ.		
OGGED BY: R	. White			WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	,	
	> 0 0			SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
1									POSTHOLE		
5—		1.4/2	0.0	SANDY CLAY: Red, orange moderate plasticity.	AYEY SAND: Orange, light red, fine to med ained, little cohesivness, hard, moderate p			sc	9,12,12,15		
10—		2.0/2	0.0					SC	6,8,7,7	1 2 1 2 1	
15—		1.0/2	0.0	• • • • •	ND: Light red, orange, yellow, white banded, fine to dium grained with some coarse, loose, quartzitic bbles throughout.			SW	2,4,5,5	212121	
20-		1.0/2	0.0	AYEY SAND: Beige, orange mottled clay over ayey sand, light red, light orange, yellow banded be to medium grained with quartzitic pebbles roughout.				sc	5,4,6,4	1 2 1 2 1 2 1	
25—		1.3/2	0.0	SAND: White, red banded fine to coarse grained will			• • •	SW	6,6,9,9		
30		1.5/2	0.0	SAND: Light red over whit quartzitic pebbles trace t			• • •	SW	8,10,13,13		
35—		1.3/2	0.0	SAND: Orange, pink, light fine to medium grained, la loose.				SP	6,11,10,13		
40		1.4/2	0.0	SAND: Pink over white, fin	AND: Pink over white, fine to medium gra			SP	8,10,15,15	1 2 1 2 1 2 1	
45—- - - -		1.1/2	0.0	SAND: White, fine to coar quartzitic pebbles, loose.	ND: White, fine to coarse grained with son artzitic pebbles, loose.		• • •	SW	10,9,9,13		
50		1.4/2	0.0	SAND: White to light yello loose.	w, fine to	medium grained,		SP	14,17,15,16		

ITLE: NAS Whiting Field		LOG of	WELL: WHF-1467-	9	BORI	NG NO. NFF-SB-35	
LIENT: SOUTHNAVFACENGCOM	· · · · · · · · · · · · · · · · · · ·				PROJ	ECT NO: 7518-30	
ONTRACTOR: Groundwater Protection			DATE STARTED: 1	/12/92	COMPLTD: 1/12/92		
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 85'-100'		PROTE			
OC ELEV.: 162.99 FT.	MONITOR INST.: 0VA		TOT DPTH: 100FT	•	DPTH	TO ♀ FT.	
OGGED BY: R. White	WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
SAMPE SAMPE TO SAMPE FOR THE ADSPACE (Ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
J J SA	ND: Pale yellow, fine to a rtzitic pebbles loose.				SP	11,12,19,16	
	AYEY SAND: Yellow, pink dium grained over fine g		ind, white, fine to		SP	16,15,19,19	
5— 1.1/2 0.0 SA	ND: White, fine to mediur	m grained			SP	19,19,27,30	
1.5/2 0.0						15,19,21,23	21 21 21 21
5 1.5/2 0.0						27,28,36,31	2121212
1.4/2 0.0						17,27,28,23	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
5— 1.7/2 0.0 SA	ND: White, fine grained,	slight he	avy minerals, wet.		SP	25,24,28,20	
	ND: Pinkish white, fine to turated.	o coarse	grained,	• • •	SW	WOR,29	
5—							
05—							

	Field		LOG	of WELL: WHF-1467-1	0		NG NO. NFF-SB-5	6	
LIENT: SOUTHNA			· · · · ·	DATE OF LEGE !	PROJECT NO: 7518-40				
ONTRACTOR: Grou		rotect		DATE STARTED: 1			COMPLTD: 1/25/92		
ETHOD: 6.25" HSA	· · · · · · · · · · · · · · · · · · ·		CASE SIZE: 4 inch	SCREEN INT.: 75			CTION LEVEL: D		
OC ELEV: FT.			MONITOR INST.: OVA	TOT DPTH: 89.10F	Т.		TO ♀ 82.29 FT.		
OGGED BY: C. Kin	9	WELL DEVELOPMENT DATE: 2/26/92			SITE:	1467			
LABORATORY A	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIF AND COMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	8LOWS/6-IN	WELL DATA	
		-				n and a second property of the second propert	POSTHOLE	2 2 2 2	
5—	2.0/2	0.0	SANDY CLAY: Reddish-orange, fin moderate clay content, damp.	e-grained,		SC	3,7,7,7	1212121	
0	1.5/2	0.0		·			8,15,14,14		
15—	1.7/2	0.0	SANDY CLAY: Orange-brown, fine- medium-grained, low clay content.			SC	10,9,9,9		
20-	1.0/2	0.0	SAND: Pink-white with yellow band spoon, fine- to medium-grained w some gravel throughout spoon.		• • •	SW	7,7.6,7		
25—	1.5/2	0.0	SAND: Off-white to white, fine-gr coarse grains and gravel, yellow- spoon.		• • •	SW	6,7,7,8	1 2 2 2 1 2	
30	1.5/2	0.0	SAND: Off-white to white, fine- to with fine- to medium-grained, yell 4" of spoon.			SP	5,6,7,9		
35—	1.3/2	0.0	SAND: Light pink to off-white, fine medium-grained, with some coarse			SP	2,10,12,13		
40-	1.5/2	0.0	SAND: Off-white to light gray, fin medium-grained.	e- to		SP	10,12,15,15		
45—	1.0/2	0.0	SANDY CLAY: Reddish-pink, fine- content.	grained, low clay		SC	16,9,9,11	1 4 4 4 4	

LIENT: SOUTHNAVF	ield ACENGO	nom.		LOG of WELL: WHF -1467	~10		NG NO. NFF-SB-56	
ONTRACTOR: Ground			tion. Inc.	DATE STARTED	: 1/25/92	PROJECT NO: 7518-40 COMPLTD: 1/25/92		
ETHOD: 6.25" HSA			CASE SIZE: 4 inch	SCREEN INT.: 7		PROTE		
OC ELEV.: FT.			MONITOR INST.: OVA	TOT DPTH: 89.10	·		TO ¥ 82.29 FT.	·
DGGED BY: C. King			WELL DEVELOPMENT I			SITE:		
L' LABORATORY WE SAMPLE ID. WE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK (DESCRIPTION MMENTS from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	1.5/2	0.0	SAND: Off-white to white,	fine- to medium-grained.		SP	12,14,15,14	
5—	1.7/2	0.0					19,20,23,26	2020202020
	1.5/2	0.0	SAND: Off-white to white,	fine- to medium-grained.		SP	18,19,22,29	
5	1.5/2	0.0	SAND: Red-pink to dark pinedium-grained.	nk, fine- to		SP	12,14,20,22	
	1.7/2	0.0	SAND: Dark pink with strea medium with coarse grains		• • •	SW	Wt. of Rod	
5—	2.0/2	0.0	CLAY: Red-gray, soft, very	y plastic.		CH	Wt. of Rod	
	1.5/2	0.0	CLAY: Red-gray, stiff 1', di fine- to medium- grained in			СН	Wt. of Rod	
5	1.5/2	G.C.	SAND: Light tan, silty to ve medium grains, saturated.	ery fine-grained with some		SM	20,21,28,25	
0-1								
5	2.0/2	G.C.	SAND: Light tan, silty to ve medium grains, saturated.	ery fine-grained with some		SP	8,10,9,8	

	ENT: SOUTHNAVFACENGCOM				LUG OF	WELL: WHF-1467-1		BOHI	NG NO. NFF-SB-57		
LIENT: SO	UTHNAVF	ACENGO	ОМ					PROJECT NO: 7518-30			
ONTRACTO	R: Ground	lwater P	rotec	ion	DATE STARTED: 1/25/92			COMPLTD: 1/25/92			
ETHOD: HS	SA.			CASE SIZE: 4 inch		SCREEN INT.: 75	'-90'	PROTE	CTION LEVEL: D		
OC ELEV.:	156.49 F1			MONITOR INST.: OVA	MONITOR INST.: OVA TOT DPTH: 90FT.			DPTH TO ¥ 81.5 FT.			
OGGED BY	: J. Koch			WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm		
LABOR SAMPI	RECOVERY HEADSPACE (PDIII)			SOIL/ROCK I	DESCRIPT MMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6IN	WELL DATA	
									POSTHOLE		
5—		2.0/2	0.0	SAND: Reddish-brown, very	/ fine gra	fine grained, silty.		SP	1,2,2,2	"	
0		1.6/2	0.0	CLAYEY SAND: Reddish-br plasticity, silty.	own, ver	y fine grained, low		SC	6,7,5,4		
5		1.6/2	0.0	SAND: Peach, fine to coars quartz gravel, silty	se graine	grained with some		SW	5,7,7,7		
0		2.0/2	0.0	SAND: Pink to peach, fine t some quartz gravel, poorly		e grained with	• • •	SW	5,7,5,8	" " " " " " "	
25—		1.6/2	0.0	SAND: Pink, low plasticity,	some cla	y.	• • •	SW	3,6,4,7	1 2 2 2 1	
00-		1.6/2	0.0	SANO: Light pink, fine to co quartzitic gravel, trace he			• • •	SW	6,9,11,10	211 211 211	
35		1.2/2	0.0	SAND: Peach, fine to coars quartzitic gravel, trace he			• • •	SW	6,12,12,13	2" 2" 2" 2"	
10	1	1.6/2	0.0						7,11,15,16	21 21 21 21	
15— - - -	1	1.6/2	1.0	SAND: Light pink to yellow, trace heavy minerals.	, fine to	medium grained,		SP	7,12,13,14		

ITLE: NAS Whiting Field No	rth Fuel	Farm	LOG of	WELL: WHF-1467-	11	BORI	NG NO. NFF-SB-57	7	
IENT: SOUTHNAVFACENG	СОМ		<u> </u>			PROJ	ECT NO: 7518-30		
ONTRACTOR: Groundwater	Protectio	on .		DATE STARTED:	1/25/92	COMPLTD: 1/25/92			
ETHOD: HSA		CASE SIZE: 4 inch		SCREEN INT.: 75'-90'			PROTECTION LEVEL: D		
OC ELEV.: 156.49 FT.		MONITOR INST.: OVA		TOT DPTH: 90FT.			TO ¥ 81.5 FT.		
OGGED BY: J. Koch		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm		
S ANPLE S SANPLE TO SANPLE					LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA	
1.6/2	70015	SAND: Off-white, very fine leavy minerals, well-sorte	e to fine (SP	10,16,20,19		
5 - 1.6/2	0.0						8,10,16,17	20 20 20 20 20	
1.6/2	0.0	SAND: Orange-brown, med boorly sorted, some quart ninerals.			• • •	SW	5,11,14,12		
2.0/2		SAND: Yellow, peach, red grained, well- sorted, trad				SP	5,10,16,11		
2.0/2		SAND: Yellow, peach, red grained, well– sorted, trad				SP	6,8,8,12		
2.0/2		SAND: Light pink to orang trace heavy minerals, mica		medium grained,		SP	11,11,11,11		
2.0/2		SAND: Off-white, fine graneavy minerals, damp.	ined, well-	-sorted, trace		SP	8,8,12,9		
2.0/2	0.0						11,8,4,5		
2.0/2		SAND: Lght orange-brown saturated.	n, fine gra	ined, well-sorted,		SP	4,6,7,7		
5—1							,		
		PAGE	2 of 14	67-11 ABB	ENVIRO	NMEN	TAL SERVICES	. INC	

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-12		BORI	NG NO. NFF-SB-55	5		
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40			
ONTRACTOR: Groundwater Protection, Inc		DATE STARTED: 1/27/92			COMPLTD: 1/27/92			
ETHOD: 6.25" HSA CA	SE SIZE: 4 inch	SCREEN INT.: 68'-8	33';98'-	OEROTE	CTION LEVEL: D			
OC ELEV.: FT. M	NITOR INST.: OVA	TOT DPTH: 106.55FT		OPTH	TO ♀ 82.65 FT.			
OGGED BY: C. King	LL DEVELOPMENT DATE: 2/2			SITE:	1467			
SAMPLE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA		
					POSTHOLE			
5— 2.0/2 0.0 CLAYE plastic	r SAND: Light gray, very fine ty.	e-grained, low		SC	3,3,3,4			
	r SAND: Reddish-brown to g ained, silty.	ray, very		sc	5,12,13,12			
	Y SAND: Reddish-brown to g -grained with some quartz g			SC	7,10,8,7			
	Off-white, fine- to medium-ç minerals, mica.	grained, trace		SP	6,5,7,7			
	Off-white, very fine- to coa uartz gravel, trace heavy mi		• • •	SW	4,5,9,8			
	Y SAND: Orange-brown to grained, low plasticity.	ray, very		SC	7,6,6,5			
	Off-white, fine- to very fine, trace heavy minerals, mica.			SP	6,6,7,6			
1.0/2					4,4,4,7			
	Off-white to pink, fine- to come quartz gravel, trace hea		• • •	SW	7,6,7,10			
50	PAGE 1 of 14	67-12 ABB F	NVIRO	SW	TAL SERVICES	INC.		

TITLE: NAS Whiting Field			LOG of	WELL: WHF-1467-1	12	BORI	NG NO. NFF-SB-5	5
CLIENT: SOUTHNAVFACENGCO	М					PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Pro	otection,	Inc.		DATE STARTED: 1	/27/92		COMPLTD: 1/27/9	92
METHOD: 6.25" HSA		CASE SIZE: 4 inch		SCREEN INT.: 68	'-83':98'-	10EROTI	ECTION LEVEL: D	
TOC ELEV.: FT.		MONITOR INST.: OVA		TOT DPTH: 106.55	FT.	DPTH	TO ¥ 82.65 FT.	
LOGGED BY: C. King		WELL DEVELOPMENT	DATE: 2/3	27/92		SITE:	1467	
CECOVERY RECOVERY MEADSPACE	(wdd)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
7 1	SAN	ID: Off-white, fine- to vy minerals.	· · · · · · · · · · · · · · · · · · ·		• • •	SW	9,7,7,8	
55—	0.0						7,10,12,14	1 2 2 2 2 2 2 2 3
60-1.6/2	201	ND: Orange, fine- to coerals.	oarse-gra	ined, trace heavy	•••	SW	7,11,12,13	
65—	O.O SAM	ND: Pink, fine- to coars	se-graine	d.	• • •	SW	9,16,19,18	
70	~ ~ !	ND: Yellow, orange, pinl arse-grained with some			• • •	SW	5,7,7,10	
75 0.4/2	201	ND: Yellow, orange, pin arse-grained.	k, red, mo	ttled, fine- to	• • •	SW	Wt of Rod	
80	1.0 CL	AY: Gray to orange-br	own, stiff,	high plasticity.	=====	СН	Wt. of Rod	Ţ
85—	0.0						8,7,9,9	
90	1.0 CL	AY: Gray to orange-br	own, high	plasticity.		СН	5,5,6,4	
95—		AY: Gray to red to pink sticity.	k, very fin	e-grained, high		СН	4,4,6,5	
100		PAGE	2 of 14	67-12 ABB	ENVIRO	sc /	TAL SERVICES	. INC.

IENT: SOUT	HNAVEA	CENCO	:OM			WELL: WHF-1467-		PROJECT NO: 7518-40			
NTRACTOR:				ion. Inc.		DATE STARTED:	1/27/92		COMPLTD: 1/27/9	92	
ETHOD: 6.25"		vater r		CASE SIZE: 4 inch				IOEROTI	ECTION LEVEL: D		
		·		MONITOR INST.: OVA		TOT DPTH: 106.5			TO ♀ 82.65 FT.		
OGGED BY:				WELL DEVELOPMENT	DATE: 2/	<u> </u>	<u> </u>	SITE:		<u></u>	
LABORATO SAMPLE	- uı	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIP	TION	.ITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
1		2.0/2		CLAYEY SAND: Light brown plasticity, saturated				sc	7,12,18,26		
5—											
5—											
25—											
40											
45											

	id, Site	2891		LOG o	f WELL: WHF-1467-1	3R	BORI	NG NO. AST-SB-12	!	
LIENT: SOUTHNAVFAC	ENGC	ОМ					PROJ	ECT NO: 7518-30		
CONTRACTOR: Groundw	ater P	rotect	on, Inc.	-	DATE STARTED: 0	5/20/92		COMPLTD: 05/20	0/92	
4ETHOD: HSA			CASE SIZE: 4" ID		SCREEN INT.: 75	-90'	PROTECTION LEVEL: D			
TOC ELEV.: 164.57 FT.			MONITOR INST.: 0V	A	TOT DPTH: 90FT.		DPTH	TO ♀ 81 FT.		
.OGGED BY: N. Pagano)		WELL DEVELOPMENT	DATE:			SITE:	2891		
LABORATORY WE SAMPLE ID. WE W	L LABORATORY SOLL/RO L SAMPLE ID. SOLL/RO L SAMPLE				TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5—	1.8/2	0.0	SAND: Medium grained, tr	ace of cla	ıy.		SP	POSTHOLE		
10-	2.0/2		SANDY CLAY: Mottled red grained.	d/gold/off	-white, fine		CL			
15	2.0/2	0.0	SILTY CLAY: Mottled red grained sand.	I/gold/off	-white, some fine		CL			
20	1.8/2	0.0	SILTY CLAY: Mottled ligh	nt gray/pir	nk, stiff, damp.		CL			
25	1.5/2	0.0								
30—	1.8/2	0.0	SAND: Pink, fine grained, moist.	well sorte	ed, 2" clay layer,		SP			
35—	1.5/2	0.0								
40	1.5/2	0.0	SAND: Pink, very fine to medium grains, well grade		ed with some		SP			
45—	1.8/2	0.0	SAND: White with red-br grained, well graded, dry		s, very fine to fine		SP		<u> </u>	

LIENT: SOUTH	NAVEACE	NGC)M		200 01	WELL: WHF-1467-1			NG NO. AST-SB-12 ECT NO: 7518-30	
ONTRACTOR: (ion. Inc.		DATE STARTED: 0	COMPLTD: 05/20/92			
ETHOD: HSA				CASE SIZE: 4" ID	······································	SCREEN INT.: 75		PROTE	CTION LEVEL: D	
OC ELEV.: 164	.57 FT.			MONITOR INST.: OVA		TOT DPTH: 90FT.			TO ¥ 81 FT.	
OGGED BY: N				WELL DEVELOPMENT				SITE:		
L LABORATO		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK	DESCRIPT OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	2.		1	SAND: White, very fine to graded.				SP		
55—	1.	6/2	2.0	SAND: White, very fine to graded.	fine grain	ed, moderately		SP		
0-	1.	8/2	0.0							
35—	1.	8/2	0.0							
/o - -	1.	.6/2	0.0	SAND: Gray with yellow lac coarse grained, well grade			• • •	SW		1 2 産業産業 11・1
75—	2	.0/2	0.0	SAND: White with red and small gravel.	orange la	yers, very fine to	• • •	SW		
30	2	2.0/2	0.0	SAND: White with orange a coarse grained, damp.	and yellov	a layers, medium to	• • •	SW		
85—	2	2.0/2	0.0	SILTY CLAY: Mottled or an	nge/yelloi	w/gray, moist.		CL		
90—	2	2.0/2	0.0	CLAY: Mottled gray/brown damp.	n/orange,	silty lenses,		CL		
95—			-	,		·		·		

TITLE: NAS Whiting Field North Fuel	Farm LOG of	WELL: WHF-1467-14		BORI	NG NO. NFF-SB-47	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection	on .	DATE STARTED: 3/1	<u> </u>			
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 95'-1	95'-110' PROTECTION LEVEL:			
TOC ELEV.: 174.47 FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.		DPTH	TO ♀ 98 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE:	North Fuel Farm	
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	1
					POSTHOLE	Z
	SANDY CLAY: Red-brown, yellow, and the grained, moist.	nd white, fine to		SC	6,12,22,21	
	CLAY: Red-brown, yellow, rose, beig grained, stiff.	ge, fine to medium		SC	4,6,12,12	
	SANDY CLAY: Rose, white, tan, fine grained.	to medium		sc	5,3,4,3	
	SANDY CLAY: Red-brown, rose, fine grained.	e to medium		SC	5,5,6,6	
	SANDY CLAY: Yellow, red-brown, wi grained, moderate clay content.	hite, fine to medium		sc	5,6,7,6	
1	SAND: Yellow, red-brown, white, fin grained.	e to medium		SP	16,12,12,15	
	SAND: Yellow, pink, buff, tan, fine twith some clay and gravel.	_	• • •	SW	9,10,12,12	
	SAND: Buff, tan, white, fine to coar some gravel.		• • •	SW	10,12,12,15	
1.6/2 0.0	SAND: Buff, tan, and white, fine to	medium grained.		SP	16,18,16,12	
50—					10,11,15,20	
55	PAGE 1 of 14	67-14	NVIDO	SP	TAL SERVICES.	71

				**************************************	LOG of				NG NO. NFF-SB-47	
IENT: SOUT						DATE OTABLE	3/11/00	PROJ	ECT NO: 7518~40	
ONTRACTOR:		ater P	rotect			DATE STARTED:		0007	COMPLTD: 3/11/9 ECTION LEVEL: D	
ETHOD: HSA				CASE SIZE: 4 inch		SCREEN INT.: 9			<u> </u>	
OC ELEV.: 17				MONITOR INST.: OVA		TOT DPTH: 110FT	•		TO \$ 98 FT.	
DGGED BY: 1	N. Pagan	<u> </u>		WELL DEVELOPMENT	DATE:				North Fuel Farm	
L LABORAT	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1		1.3/2	0.0	SAND: Buff, tan, and white	e, fine to i	medium grained.		SP	10,12,12,15	
0		1.3/2	0.0						6,8,8,6	
5—]		1.0/2	3.0	SAND: Buff, tan, and white	e, fine to	medium grained.		SP	12,15,21,20	
0-1		1.7/2	1.0	SAND: Red, pink, white, fin	e to coar	se grained.	• • •	SW	WT. of ROD	
5—		1.7/2	0.0	SAND: Pink, white, buff, fir	ne to med	ium grained.		SP	0,1,48,51	
0-		1.3/2	2.0						12,15,29,31	
5—		1.3/2	2.0	SAND: White, light grey, fir	ne to med	lium grained.		SP	WT. of ROD	
0-1		1.2/2	0.0						28,34,35,39	
5—		1.2/2	0.0	SAND: White, light grey, fil	ne to med	lium grained.		SP	14,18,20,20	
0		1.6/2	-	SAND: Pink, buff, tan, fine saturated.	to mediu	m grained,		SP	WT. of ROD	
5—		1.2/2				·		-		

TITLE: NAS W	niting Fie	eld			LOG of	WELL: WHF-1467-15	BORING NO. NFF-SB-52				
CLIENT: SOUT	HNAVFA	CENGO	ЮМ		<u> </u>			PRO	JECT NO: 7518-40		
CONTRACTOR:	Ground	water P	rotec	tion, Inc.		DATE STARTED: 3	/11/92		COMPLTD: 3/11/92		
METHOD: 6.25	" HSA			CASE SIZE: 4 inch		SCREEN INT.: 100	0'-115' PROTECTION LEVEL: D				
TOC ELEV.: F	Т.			MONITOR INST.: OVA		TOT DPTH: 115.50F	DFT. DPTH TO \$ 108.75 FT.				
OGGED BY: I	N. Pagar	10		WELL DEVELOPMENT D	ATE:			SITE	: 1467		
LABORAT SAMPLE	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK E AND CO	DESCRIPT MMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN		
			-						POSTHOLE	Z	
5—		2.0/2	0.0	SAND: Reddish brown, fine-	-grained,	some clay, damp.		SC	2,3,4,3		
10		2.0/2	0.0			·			2,10,7,6		
15—		2.0/2	0.0	SANDY CLAY: Reddish-brod clay content, damp.	wn, fine-	grained, moderate		sc	7,8,8,8		
20-		1.5/2	0.0	SANDY CLAY: Reddish-bro coarse-grained, moderate				SC	10,16,15,12		
25—		2.0/2	0.0	SANDY CLAY: Orange-brow moderate clay content .5', pink to light pink, fine- small amount of clay in rem	to medic	ım-grained sand,		SC	5,6,9,9		
30-		1.5/2	0.0	SAND: Light gray to off-wi medium-grained.				SP	11,17,20,22		
35		1.0/2	0.0	SAND: Off-white to white,	fine- to	medium-grained.		SP	12,15,15,16		
40		1.5/2	0.0	SAND: Off-white to white is medium- to coarse- grains		nk, 3" band,		SP	12,12,15,12		
45—		1.0/2	0.0	SAND: Light pink to off-who coarse-grained.	nite, med	ium- to		SP	12,16,18,20		

ITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-15	BORING	3 NO. NFF-SB-52	
LIENT: SOUTHNAVFACENGCOM			PROJEC	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection,	Inc.	DATE STARTED: 3/11/92		COMPLTD: 3/11/92	
ETHOD: 6.25" HSA	CASE SIZE: 4 inch	SCREEN INT.: 100'-115'	PROTEC	TION LEVEL: D	
OC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 115.50FT.	DPTH T	0 ¥ 108.75 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SITE: 14	467	
SAMPLE SAMPLE HEADSPACE (Ppm)	SOIL/ROCK DESCRIPT! AND COMMENTS Continued from PA	THO	SOIL CLASS	BLOWS/8-IN	WELL DATA
]	ND: Pink to light pink, medium- to n gravel zones throughout spoon.	coarse-grained	SP	14,14,15,16	
1	ND: Light pink to off-white, fine- dium-grained with some coarse gr	F 1 4 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	SP	18,20,21,20	
1.3/2 0.0				15,17,21,21	
5—————————————————————————————————————	ND: Off-white to white, fine- to n	nedium-grained.	SP	14,15,15,17	
1.5/2 0.0 thi	ND: Light pink to off-white with poughout spoon, fine- to coarse- avel throughout spoon.		SW	Wt. of Rod	
5—————————————————————————————————————	ND: Off-white to white, fine- to r	nedium-grained.	SP	9,10,15,16	12121
	ND: Off-white to white, fine- to a h some gravel in top .5' of spoon		SP	21,22,24,24	
	ND: Off-white to white, fine- to r h few coarse grains and gravel.	medium-grained	SW	Wt. of Rod	
1.5/2 0.0 wi	ND: Pink to light pink, medium— to h gravel .5', off—white to white, f dium—grained with few coarse gra spoon.	ine- to	1 1	Wt. of Rod	
	ND: Off-white to light pink, fine-dium-grained.	to		Wt. of Rod	
		67-15 ABB ENVIR			

ITLE: NAS Whiting Field	LO	G of WELL: WHF-1467-	15	BORI	NG NO. NFF-SB-52	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Protection,	Inc.	DATE STARTED:	3/11/92		COMPLTD: 3/11/9	2
ETHOD: 6.25" HSA	CASE SIZE: 4 inch	SCREEN INT.: 10	0'-115'	PROTE	ECTION LEVEL: D	
OC ELEY.: FT.	MONITOR INST.: OVA	TOT DPTH: 115.50	FT.	DPTH	TO ¥ 108.75 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE	• •••		SITE:	1467	
S AN THE SAN T	SOIL/ROCK DESC AND COMMEN Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.5/2 0.0					Wt. of Rod	
2.0/2 G.C. thr	ND: Light pink to off-white woughout .5', medium- to coarangish-yellow, fine-grained, spoon, saturated.	se-grained,		SP	20,21,22,25	
5—————————————————————————————————————	AY: Pinkish-gray, very stiff,	plastic.		CL	Wt. of Rod	
1.5/2 G.C. co	ND: Dark pink to light pink to arse-grained with some pebt turated.			SP	6,20,25,25	
5—						
0—						
95—						
15—						

	Field Nor	in Fuel	r arm	LOG of	WELL: WHF-1467-16	•	BORI	NG NO. NFF-SB-5	3
LIENT: SOUTHNAY	/FACENGC	ОМ	-				PROJ	ECT NO: 7518-40	
ONTRACTOR: Grou	ndwater P	rotecti	on		DATE STARTED: 3/	12/92		COMPLTD: 3/12/	92
ETHOD: HSA			CASE SIZE: 4 inch		SCREEN INT.: 100	-115'			
OC ELEV.: 177.05	FT.		MONITOR INST.: OVA		TOT OPTH: 115FT.		TO ♀ 103 FT.		
OGGED BY: N. Pag	gano		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
L' LABORATORY A	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	2.0/2		SAND: Orange-brown, find neavy minerals, mica.	e grained,	well-sorted, trace		SP	N.M.	
10-	2.0/2	0.0	CLAYEY SAND: Red-brow	ın, very fin	ne grained, silty.		SC	N.M.	
15	2.0/2	ותחו	CLAYEY SAND: Pink, tan, grained, low plasticity.	yellow mol	ttled, very fine		sc	4,5,9,10	
20-	2.0/2	1 0 0 1	SAND: Light pink to peac trace heavy minerals, sor		medium grained,		SP	4,9,12,13	
25—	2.0/2	0.0	CLAYEY SAND: Pink, orangrained to coarse graine				SC	4,5,4,4	
00-	2.0/2	0.0	CLAY: Pink, orange, gray	mottled, i	ow plasticity.		CL	3,2,2,3	
35—	2.0/2	0.0	CLAY: Pink, orange, gray SAND: Off-white to beig trace heavy minerals				CL	12,16,26,28	
40—	2.0/2	0.0	SAND: Off-white to tan, heavy minerals.	fine to me	dium grained, trace		SP	9,12,15,11	
45—	1.6/2	0.0	SAND: Off-white to beig some quartzitic gravel, t			• • •	SW	6,7,9,10	
50	2.0/2	0.0	SAND: Off-white, fine to quartzitic gravel, trace l			• • •	SW	3,8,9,10	

MONITOR INST.: OVA TOT DPTH: HISFT. DPTH TO \$ 103 FT.	ITLE: NAS Whiting Field North Fuel Fa	LOG	of WELL: WHF-1467-16	6	BORING I	NO. NFF-SB-5	3	
THE THOO: HSA CASE SIZE: 4 Inch SCREEN INT.: 100'-115' PROTECTION LEVEL: D CO ELEV.: 177.05 FT. MONITOR INST.: OVA TOT DPTH: 115FT. DPTH TO \$ 103 FT. DOBBED BY: N. Pagano WELL DEVELOPMENT DATE: SITE: North Fuel Farm SOIL./ROCK DESCRIPTION AND COMMENTS SAMPLE ID. \$ 20/2 0.0 SAND: Off-white, fine to coarse grained, trace heavy minerals, mica. SAND: Off-white to pink, fine to very fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to pink, fine to medium grained, well-sorted, trace heavy minerals. SAND: Off-white to pink, fine to medium grained, well-sorted, trace heavy minerals. SAND: Off-white to pink, fine to medium grained, well-sorted, trace heavy minerals. SAND: Off-white to pink, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white, pink, orange, fine to medium grained, well-sorted, trace heavy minerals, mica.					PROJECT	NO: 7518-40		
OC ELEV: 177.05 FT. DOGGED BY: N. Pagano WELL DEVELOPMENT DATE: SITE: North Fuel Farm SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1 2.0/2 0.0 SAND: Off-white, fine to coarse grained, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to pink, fine to wedium grained, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. SP 14,14,14,13 16/2 0.0 SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SP 8,10,11,13	ONTRACTOR: Groundwater Protection		DATE STARTED: 3	/12/92	С	OMPLTD: 3/12/	92	
SITE: North Fuel Farm SITE	ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 100	1'-115'	PROTECTI	ON LEVEL: D		
SAND: Off-white to pink, fine to werly fine grained, well-sorted, trace heavy minerals. 1.6/2 0.0	OC ELEV.: 177.05 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.		OPTH TO ♀ 103 FT.			
2.0/2 0.0 SAND: Off-white, fine to coarse grained, trace heavy minerals, some clay. 7,10,12,12 5-2.0/2 0.0 SAND: Off-white, fine grained, well-sorted, trace heavy minerals. 7,9,11,8 7,9,11,8 7,9,12,15 7,9,12,15 7,9,12,15 7,9,12,15 7,9,13,14 7,10,12,12 7,9,11,8 7,9	OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE: Nor	th Fuel Farm		
2.0/2 0.0 SAND: Off-white, fine to coarse grained, trace heavy minerals, some clay. 7,10,12,12 5-2.0/2 0.0 SAND: Off-white, fine grained, well-sorted, trace heavy minerals. SAND: Off-white to pink, fine to very fine grained, well-sorted, trace heavy minerals, mica. 7,9,11,8 7,9,11,8 7,9,12,15	RECOVERY HEADSPACE (pm)	AND COMMENTS	5	LITHOLOGIC	SOIL CLASS	BLOWS/8-IN	WELL DATA	
2.0/2 0.0 minerals, some clay. 7,10,12,12						5,9,13,13		
2.0/2 0.0 heavy minerals. SAND: Off-white to pink, fine to very fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to pink, fine to medium grained, trace heavy minerals. SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white, pink, orange, fine to coarse		-	rained, trace heavy	• • •	SW	7,10,12,12		
2.0/2 0.0 well-sorted, trace heavy minerals, mica. 1.6/2 0.0 SAND: Off-white to pink, fine to medium grained, trace heavy minerals. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 10.9,15,16 10.9,15,16 10.9,15,16 10.9,15,16 10.9,15,16 10.9,15,16		_	l-sorted, trace		SP	7,9,11,8	~ T ~ T ~ T	
SAND: Off-white to pink, fine to medium grained, trace heavy minerals. SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white, pink, orange, fine to coarse			•		SP	5,9,12,15		
2.0/2 0.0 SAND: Off-white to orange, very fine to fine grained, well-sorted, trace heavy minerals, mica. 14,14,14,13 10,9,15,16 1.6/2 0.0 SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white, pink, orange, fine to coarse					·	5,9,13,14		
2.0/2 0.0 well-sorted, trace heavy minerals, mica. 1.6/2 0.0 SAND: Off-white to orange, fine to medium grained, well-sorted, trace heavy minerals, mica. SAND: Off-white, pink, orange, fine to coarse SAND: Off-white, pink, orange, fine to coarse		• •	edium grained,		SP	14,14,14,13		
well-sorted, trace heavy minerals, mica. 8,10,11,13 SAND: Off-white, pink, orange, fine to coarse					SP	10,9,15,16		
14 14 20 20					SP	8,10,11,13		
				1 . 1	SW	14,14,20,20		
2.0/2 N.M. SAND: Off-white to pink, fine to medium grained, trace heavy mineral, mica.			edium grained,		SP	15,18,30,33		
SAND: Red to purple, poorly sorted, gravelly, saturated.			d, gravelly,	• • •	SW	7,8,7,14		

	North Fuel F		LOG of	WELL: WHF-	-1467-16	В	ORING NO. NFF-SB-5	3
IENT: SOUTHNAVFACE							ROJECT NO: 7518-40	
ONTRACTOR: Groundwa	ter Protection)		DATE STAI	RTED: 3/12/	92	COMPLTD: 3/12/	92
ETHOD: HSA		CASE SIZE: 4 inch		SCREEN IN	IT.: 100'-11	5' PR	OTECTION LEVEL: D	
DC ELEV.: 177.05 FT.		MONITOR INST.: 0VA	<u> </u>	TOT DPTH:	115FT.	DP	TH TO \$ 103 FT.	
OGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:			SI	TE: North Fuel Farm	
L LABORATORY W	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C Continued	COMMENTS		11H010GC	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
	0/2 G.C. CI	.AY: Stiff.				CL	N.M.	
				•				
5—								
5								

CASE SIZE: 4 inch SCREEN INT.: 100"-115" PROTECTION LEVEL: FT. MONITOR INST.: 0VA TOT DPTH: 115FT. DPTH TO \$ 106 FT.	10. NFF-SB-51	BORING NO. NFF-S	BOR	·	of WELL: WHF-1467-1					
CASE SIZE: 4 inch SCREEN INT.: 100"-115' PROTECTION LEVEL: OC ELEV.: FT. MONITOR INST.: 0VA TOT DPTH: 115FT. DPTH TO \$ 106 FT.			PRO			·				
MONITOR INST.: OVA	OMPLTD: 3/13/92		<u>. 1</u>			7	Protection	ater P		
Comparison MELL DEVELOPMENT DATE: 4/27/92 SITE: 1467	ON LEVEL: D	PROTECTION LEVEL	PROT	'-115'	SCREEN INT.: 100	CASE SIZE: 4 inch			HSA	HOD: 6.25"
### LABORATORY ####################################					TOT DPTH: 115FT.	MONITOR INST.: OVA			т.	ELEV.: F
1.0/2 0.0 SAND: Reddish-brown, fine-grained, low clay content, SP 3,3,2,3	,	SITE: 1467	SITE		4/27/92	WELL DEVELOPMENT DAT			l. Pagan	GED BY: N
5	BLOWS/6-IN	SOIL CLASS BLOWS/6-1	SOIL CLASS	LITHOLOGIC SYMBOL			HEAUSPACE (ppm)	RECOVERY	SAMPLE SAMPLE	: LABORATO - SAMPLE 1
2.0/2 0.0 damp. SAND: Reddish-brown, fine-grained, little less clay than above, damp. 1.5/2 0.0 CLAY: Off-white with light pink streaks, fine-grained, very stiff, damp. 1.5/2 0.0 SAND: Off-white to white, fine- to medium-grained. SP 3.3,2,3 SP 3.4,4,4 SP 3.4,4,4 SP 3.5,6,6	POSTHOLE	POSTHOL					-			-
1.0/2 0.0 than above, damp. 1.5/2 0.0 1.5/2 0.0 CLAY: Off-white with light pink streaks, fine-grained, very stiff, damp. 3.4.4.4 3.8,9,9 1.5/2 0.0 SAND: Off-white to white, fine- to medium-grained. SP 10,15,16,19	3,3,2,3	SP 3,3,2,3	SP		ned, low clay content,			2.0/2		1
1.5/2 0.0 CLAY: Off-white with light pink streaks, fine-grained, very stiff, damp. CL 3,5,6,6 1.5/2 0.0 SAND: Off-white to white, fine- to medium-grained. SP 10,15,16,19	3,4,4,4	SP 3,4,4,4	SP		ned, little less clay			1.0/2	/	
1.0/2 0.0 very stiff, damp. 1.5/2 0.0 SAND: Off-white to white, fine- to medium-grained. 1.2/2 0.0 10,15,16,19	3,8,9,9	3,8,9,9					0.0	1.5/2		
1.5/2 0.0 SAIG. 61 Mate to water to median grands. Sr 10,15,16,19	3,5,6,6	CL 3,5,6,6	CL		treaks, fine-grained,			1.0/2	Z	
10,12,24,23	10,15,16,19	SP 10,15,16,19	SP		to medium-grained.	ND: Off-white to white, fine	0.0	1.5/2	7	1
	10,12,24,23	10,12,24,2					0.0	1.2/2		
SAND: Off-white to white, fine- to medium-grained. SP 10,16,20,20	10,16,20,20	SP 10,16,20,2	SP		to medium-grained.	ND: Off-white to white, fine	0.0	1.5/2		1
O -	12,13,16,18	SP 12,13,16,10	SP		to coarse-grained.	ND: Pink to light pink, mediu	0.0 SA	2.0/2		
SAND: Off-white to light gray, fine- to medium-grained, with some coarse grains and gravel in bottom .5' of spoon.	3,6,9,9	SW 3,6,9,9	SW	1 1		edium-grained, with some co	2.0 me	2.0/2		- - - -

				LOG of WELL: WHF-14	6/-1/	BOKI	NG NO. NFF-SB-51	
LIENT: SOUTHN	AVFACENG	COM				PROJ	ECT NO: 7518-40	
CONTRACTOR: Gr	oundwater	Protect	ion, Inc.	DATE START	ED: 3/13/92		COMPLTD: 3/13/9	92
(ETHOD: 6.25" H	SA .		CASE SIZE: 4 inch	SCREEN INT.	: 100'-115'	PROTE	CTION LEVEL: 0	
OC ELEV.: FT.			MONITOR INST.: OVA	TOT DPTH: 115	5FŢ.	DPTH	TO ¥ 106 FT.	
OGGED BY: N. P	'agano		WELL DEVELOPMENT D	ATE: 4/27/92		SITE:	1467	
LABORATORY SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DI AND COM Continued fi	MENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	1.5/2	0.0					8,12,15,15	
55—	1.0/2	0.0	SAND: Light pink to off-whit medium-grained with coarse		• • •	SW	15,15,20,22	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
50-	1.2/2	0.0					10,10,12,15	
85—	1.0/2	0.0	SAND: Light gray to off-wh medium-grained.	ite, fine- to		SP	15,18,20,25	7 2 7 2 7 2 7
70-	1.0/2	0.0	SAND: Off-white to white, muth gravel throughout.	nedium- to coarse-gra	ained	SP	Wt. of Rod	
75—	1.5/2	0.0	SAND: Light pink to off-whi medium-grained with few co		al. (SP	10,12,15,18	
30-	1.0/2	0.0	SAND: Light gray to off-wh coarse-grained with gravel			SP	15,35,50,R	"
85—	1.0/2	0.0	SAND: Light gray to off-wh medium-grained.	nite, fine- to		SP	Wt. of Rod	
90—	1.0/2	0.0	SAND: Light gray to off-whomedium-grained	nite to light yellow, fine	-	SP	Wt. of Rod	
95—	1.5/2	0.0					25,29,30,32	

ITLE: NAS Whiting Field	LOG	of WELL: WHF-1467-17	7	BORI	ING NO. NFF-SB-5	l
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	· · · · · · · · · · · · · · · · · · ·
ONTRACTOR: Groundwater Protection		DATE STARTED: 3			COMPLTD: 3/13/1	92
ETHOD: 6.25" HSA	CASE SIZE: 4 inch	SCREEN INT.: 100	'-115'	PROTI	ECTION LEVEL: D	
OC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.		DPTH	TO ¥ 106 FT.	
DGGED BY: N. Pagano	WELL DEVELOPMENT DATE:	4/27/92		SITE:	1467	
SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCR AND COMMENT Continued from (rs ·	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
7 7.00	SAND: Pink to light pink with yello nedium-grained.	ow streaks, fine- to		SP	Wt. of Rod	
1.5/2 G.C.	SAND: Pink to light pink with alter ine— to medium—grained with coa gravel throughout, saturated.		• • •	SW	Wt. of Rod	
0-1						
5—						
0-						
5—				Ē		
o—						
; 						
5—						
		·				

				h Fuel		LOG of	WELL: WHF-1467-1	8	BORING NO. NFF-SB-50		
LIENT:	SOUTHNA	VFAC	ENGC	OM					PROJECT NO: 7518-40		
ONTRAC	CTOR: Grou	ındwa	ater P	rotect	on		DATE STARTED: 3	/13/92	COMPLTD: 3/13/92		
ETHOD:	HSA				CASE SIZE: 4 inch		SCREEN INT.: 100	0'-115'	PROTECTION LEVEL: D		
OC ELE	V.: 175.12 F	т.			MONITOR INST.: OVA		TOT DPTH: 115FT.		DPTH TO T FT.		
.OGGED	BY: N. Pa	gano			WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
LAB SA	BORATORY S	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	TON	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-				-						POSTHOLE	
5—			2.0/2	0,0	SANDY CLAY: Reddish bro clay content, damp.	wn, fine g	rained, moderate		sc	3,3,3,3	
10-			2.0/2	0.0	SAND: Reddish brown, fine content, damp.	e grained,	small clay		SP	3,3,4,4	
15—			0.5/2	0.0						3,4,5,6	21 21 21 2
20-			2.0/2	0.0	CLAY: Light pink to off-w sand in top 4" of spoon.	hite, fine	grained very stiff,		SC	7,16,13,10	"
25—	÷		2.0/2	0.0	CLAY: Off-white to light grained.	grey, fine	to medium		sc	10,16,21,21	
30—			1.7/2	0.0	SAND: Off-white with pink to medium grained.	c to light (oink streaks, fine		SP	10,10,12,12	1 4 4 4
35—			2.0/2	0.0	SAND: Off-white with pink coarser grains.	k to light	pink streaks, some	• • •	SW	12,14,16,20	
40-			1.7/2	0.0	SAND: Pink to light pink to grained.	o white, m	edium to coarse	• • •	SW	10,12,12,12	11 21 21
45-			1.5/2	0.0	SAND: Pink to light pink t grained, pebbles, gravel.		edium to coarse	• • •	SW	11,13,12,10	
50-			1.0/2	0.0	SAND: Pink to light pink t grained, 6" of spoon, off medium grained.			• • •	SW	9,10,10,12	

LIENT: SOUTHNAVE	ACENOC	/UI7							
	dwater P	rotect	ion		DATE STARTED: 3	/13/92	11100	COMPLTD: 3/13/9	12
IETHOD: HSA			CASE SIZE: 4 inch		SCREEN INT.: 100		PROT	ECTION LEVEL: D	
OC ELEV.: 175.12 F.1			MONITOR INST.: OVA		TOT DPTH: 115FT.			TO T FT.	
OGGED BY: N. Pag			WELL DEVELOPMENT DA	ATE:				North Fuel Farm	····································
L LABORATORY W		HEADSPACE (ppm)	SOIL/ROCK DE AND COM Continued fr	ESCRIPTI IMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
]]	1.5/2		SAND: Off-white to white, fil				SP	11,12,15,14	
0-1	2.0/2	0.0						16,18,16,16	
55—	1.2/2	001	SAND: Pink to light pink, fine coarse grained and pebbles		um grained, some		SP	15,16,16,18	1212
· o —	1.5/2	0.0	SAND: Off-white to light pin	k, fine to	o medium grained.		SP	13,14,14,14	1 2 2 2
5	0.5/2	0.0						Wt. of Rod	
0-1	1.0/2	1 20 1	SAND: Off-white with light y medium grained.	rellow str	reaks, fine to		SP	Wt. of Rod	
5—	1.3/2	0.0	SAND: Off-white to white, fi	ne to me	edium grained.			20,22,22,24	
0	2.0/2	0.0	•			-		20,21,36,36	
5—	1.0/2	0.0	SAND: Off-white to light yell grained, some coarse grains		to medium		SP	18,18,17,16	
o	1.5/2	3.0	SAND: Off-white to light pin some coarse grains, slightly		o medium grained,		SP	0,0,0,23	
05—	2.0/2	G.C.	SAND: Off-white to light pin coarse grained layers, satu		o medium grained,		SP	0,0,23,24	

			LOG of WELL: WHI		 	G NO. NFF-SB-50	<u> </u>
IENT: SOUTHNAVFACE					PROJE	CT NO: 7518-40	
NTRACTOR: Groundwa	ter Protection	T		ARTED: 3/13/92	T	COMPLTD: 3/13/9	2
THOD: HSA		CASE SIZE: 4 inch		INT.: 100'-115'	 	CTION LEVEL: D	
OC ELEV.: 175.12 FT.		MONITOR INST.: OVA		H: 115FT.		OŞ FT.	<u></u>
IGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:		SITE: N	lorth Fuel Farm	
L LABORATORY BY	RECOVERY HEADSPACE (ppm)	AND CO	DESCRIPTION DMMENTS from PAGE 2	LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
)— - - - - 5— - 1							·
5-							
			·				

				LOG of	WELL: WHF-1467-1	19	BORI	NG NO. NFF-SB-4	8
LIENT: SOUTHNAVFA	CENGC	OM					PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundw	rater P	rotecti	on		DATE STARTED: 3	3/14/92	COMPLTD: 3/14/92		
ETHOD: HSA			CASE SIZE: 4 inch		SCREEN INT.: 90	'-105'	PROTE	CTION LEVEL: D	
OC ELEV.: 169.33 FT.			MONITOR INST.: OVA		TOT DPTH: 105FT.		DPTH	TO T FT.	
DGGED BY: N. Pagan	0		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
SAMPLE ID. SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK I AND CO	DESCRIPTI MMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-		-						POSTHOLE	
5—	2.0/2		SANDY CLAY: Red-brown, moist at top.	D: Red-orange to grey, fine to medi			sc	9,13,9,10	
o <u> </u>	1.8/2	001	SAND: Red-orange to grey with some clay.	t at top. D: Red-orange to grey, fine to mediu			SC	3,3,3,4	
5	1.6/2		SANDY CLAY: Pink to white high clay content.	medium grained,		SC	3,4,5,5		
0	1.6/2	0.0			grained.		SP	4,5,5,4	1 2 1 2 1 2 11
5	1.6/2	0.0	SAND: Off-white to white,	ND: Pink to white, fine to medium g ND: Off-white to white, fine to med			SP	7,8,8,9	
0	1.6/2	0.0						7,7,8,9	1 2 1 2 1 2 1
5—	1.0/2	1 0 0 1	SAND: Off-white, buff, and grained, some coarse grain				SP	9,10,10,12	711 711 711
o	1.6/2	0.0	SAND: Pink to off-white, fi	ne to med	dium grained.		SP	6,8,8,10	"
5—	1.6/2	וממו	SAND: Yellow to pink, medi some gravel.	um to coa	erse grained with	• • •	SW	8,10,10,11	
0-	1.3/2	0.0	SAND: Off-white to white,	fine to me	edium grained.		SP	5,6,6,7	1 2 1 2 1 2 1

TLE: NAS Whiting Field North Fuel Fa	LOG of	WELL: WHF-1467-19		BORING	NO. NFF-SB-48	
IENT: SOUTHNAVFACENGCOM		<u> </u>		PROJEC	T NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 3/14	4/92		COMPLTD: 3/14/9	2
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 90'-1	05'	PROTECT	ION LEVEL: D	
OC ELEV.: 169.33 FT.	MONITOR INST.: OVA	TOT DPTH: 105FT.		DPTH TO	ŢFT.	
DGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE: No	rth Fuel Farm	
SAMPLE SAMPLE (PPM)	SOIL/ROCK DESCRIPT AND COMMENTS Continued from PA	ION GE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
1.3/2 0.0 SAI	ND: Off-white, fine to medium gra NDY CLAY: Red-pink, fine grained ntent, stiff, damp.	ined.		SP	WT. of ROD	1 2 2 4
0 - 1.3/2 0.0 SAI	ND: Off-white to white, fine to me	edium grained.		SP	WT. of ROD	
5 1.0/2 0.0					16,15,16,20	C
0 - 1.7/2 0.0 SA	ND: Off-white to white, fine to me	edium grained.		SP	15,17,20,20	1212121
	ND: Off-white with yellow bands, ained.	medium to coarse	• • •	SW	13,15,15,17	
0 1.3/2 2.0 SA	ND: Off-white to white, fine to m	edium grained.		SP	12,13,13,12	
5 - 1.3/2 4.0					9,10,10,11	Z
1	ND: Off-white to white, fine to m me gravel.	edium grained with		SP	WT. of ROD	
	ND: Off-white to light yellow, meanined with some gravel, saturated		• • •	SW	WT. of ROD	
05—						

TITLE: NAS Whiting Field	LOG of	WELL: WHF-1467-20		BORI	NG NO. NFF-SB-29	
CLIENT: SOUTHNAVFACENGCOM				PROJE	ECT NO: 7518-30	
CONTRACTOR: Groundwater Protection		DATE STARTED: 4/9	9/92		COMPLTD: 4/10/9	2
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 95'-	110'	PROTE	CTION LEVEL: D	
OC ELEV.: 172.26 FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.		OPTH '	TO 7 99 FT.	
OGGED BY: J. Koch/P. Wagner	WELL DEVELOPMENT DATE: 4/	28/92		SITE:	North Fuel Farm	
SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—	V. Doddiah brown silty low place	At at Au			POSTHOLE	
2.0/2 0.0 CEA	Y: Reddish brown, silty, low plas	neity.		CL	10,8,12,12	
	YEY SAND: Light reddish brown ned, silty.	to pink, fine		SC	7,5,9,8	
5 2.0/2 23.0 CLA	YEY SAND: Pink, fine grained.	-		sc	3,5,5,5	
1.0/2 45.0 CLA	YEY SAND: Light pink to gray, v	ery fine grained.		SC	11,9,5,4	
5 - N/A N/A NO	RECOVERY					2 2 2
∃ ■ 1 1.2/2 1 5.0 1	D: Light pink, gray, yellow, fine e quartzitic gravel, mica.	to coarse grained	. • .	SW	8,8,6,8	2 2 4
	D: Off-white, fine to medium gra rai, some small clay lenses.	ained, trace heavy		SP	7,8,8,7	121212
1.4/2 5.0					7,6,9,13	
- 1 - 1 14// 1 3 11 1	D: Off-white, fine to coarse gra tzitic gravel, trace heavy miner	4.	• • •	SW	12,15,13,13	
9 1 2 1 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	D: Off-white, fine grained, well yy mineral.	sorted, trace		SP	14,15,16,18	12121
	D: Off-white, fine to very fine one of the control			SP	13,16,16,17	1 2 1
0 -	D: Gray, fine to very fine graine	ed, well-sorted,		SP	8,9,9,18	
	D: Off-white, very fine grained, ral, well-sorted, mica.	trace heavy		SP	20,24,23,25	

ITLE: NAS Whiting Field	LO	IG of WELL: WHF-1467-	-20		G NO. NFF-SB-29	
LIENT: SOUTHNAVFACENGCOM	-			PROJE	CT NO: 7518-30	
CONTRACTOR: Groundwater Protect	on	DATE STARTED:	4/9/92		COMPLTD: 4/10/9	92
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 9	5'-110'	PROTEC	TION LEVEL: D	
TOC ELEV.: 172.26 FT.	MONITOR INST.: OVA	TOT DPTH: NOFT	•		0 ⊉ 99 FT.	
OGGED BY: J. Koch/P. Wagner	WELL DEVELOPMENT DATE	: 4/28/92		SITE: N	orth Fuel Farm	
SAMPLE SAMPLE FECOVERY (PDM)	SOIL/ROCK DESC AND COMMEI Continued from	NTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.6/2 17.0	SAND: Off-white, fine grained, heavy mineral, mica.	well-sorted, trace		SP	18,27,27,31	2 2 2 2 2 2
-1 -1 1.6/2 4.0	SAND: Off-white, fine to coarsomineral.	e grained, trace heavy	. • •	SW	19,24,20,22	
	SAND: Off-white to pink, fine to trace heavy mineral.	o medium grained,		SP	25,24,37,44	
	SAND: Off-white, fine grained, heavy mineral.	well-sorted, trace		SP	22,24,33,41	
	SAND: Off-white, fine to mediur quartzitic gravel, trace heavy i			SP	16,20,25,24	
1.8/2 600.0	CLAYEY SAND: Off-white, fine	to medium grained.		SC	15,15,15,14	
- 1	CLAYEY SAND: Off-white, fine trace heavy mineral, saturated			SC		
	CLAYEY SAND: Tan-orange, fir poorly sorted.	ne to medium grained,		SC		
	SAND: Gray, medium grained, we	ell sorted.				
12	SAND: Gray, fine to coarse gra sorted, trace heavy minerals.	ined, very poorly	••	SW		
T	SAND: Tan, red, and gray, fine moderatly sorted, trace heavy			SP		
	SAND: Tan to white, fine graine sorted.	ed, moderately well		SP		
0.3/2						
32 0.5/2						

TITLE: NAS Whiting Field	LOG of	WELL: WHF -1467-2	1	BOR	ING NO. NFF-S8-4	5
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: 7518-40	
CONTRACTOR: Groundwater Protection		DATE STARTED: 4	/21/92		COMPLTD: 4/21/	92
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 96'	-111*	PROT	ECTION LEVEL: D	
TOC ELEV.: 173.93 FT.	MONITOR INST.: OVA	TOT DPTH: INFT.		DPTH	I TO ¥ 102 FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE	: North Fuel Farm	
DEPTH FT. FT. GI BANGRET GI BANGRE SAMPLE SAMPLE HEADSPACE (ppm)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					POSTHOLE	
5 CLA	YEY SAND: Reddish brown, yello	w, tan, fine to		SC		
	lium grained, 8" stiff, wet.					99
1						
	.Y: Brown, yellow, tan, stiff, 4" o ined.	f fine to coarse		SC		
	med.				;	
15—	YEY SAND: Brown, yellow, tan, f	ine to medium				7 7
	ined, moderate clay content, we			SC		
<u> </u>						
20						
]						
as						
	ID: Rose, yellow, brown, white, fir ined.	ne to medium		SP		
30 - SAN	ID: Yellow, white, rose, fine to me	edium grained.		SP		
1.6/2 0.0 JAI		3 . -				
1.7/2 0.0						
1 [
40-	ID: White, yellow, beige, tan, fine	to medium			·	H
J 12/2 00 3AI	ined.	to medium		SP		
1						
45-1.2/2 0.0						
- 1.272 0.0						7 7
50						
1.6/2 0.0						
] []						
55—						7 1
1.6/2 0.0						
1		. •				
60—				SP /	•	تلت
	PAGE 1 of 146	7-21 ABB E	NVIRO	NMEN	TAL SERVICES.	INC.

ETHOD: HSA OC ELEV.: 173.0 OGGED BY: N.	Groundwater f 93 FT. Pagano		CASE SIZE: 4 inch MONITOR INST.: OVA		DATE STARTED: 4	1/21/92	PROJ	ECT NO: 7518-40 COMPLTD: 4/21/9	32
OC ELEV.: 173.9	93 FT. Pagano	Protect	CASE SIZE: 4 inch			/21/92		COMPLTD: 4/21/9	32
GETHOD: HSA FOC ELEV.: 173.9 OGGED BY: N. LABORATOR SAMPLE ID	Pagano								
OGGED BY: N.	Pagano		MONITOR INST.: OVA		SCREEN INT.: 96	'-111'	PROTE	CTION LEVEL: D	
					TOT DPTH: IIIFT.		DPTH	TO ♀ 102 FT.	
LABORATOR SAMPLE ID	Z.E.		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
7 1	SAMPLE SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.6/2	0.0	SAND: Light grey, white, fi				SP		77
1									
55—	1.0/2	0.0							
70—	1.2/2	0.0	SAND: White, yellow, fine t	o medium	grained.		SP		
1									
75—	1.2/2	0.0							
30-	1.2/2	0.0	SAND: White, light pink, be grained.	eige, yellov	w, fine to medium		SP		
85—	1.6/2	0.0			·	·	·		
90-	1.6/2	0.0	SAND: Rose, yellow, light a medium grained, little clay		e, white, fine to		SP		
95—	1.6/2	0.0	SAND: Rose, maroon, yello coarse grained.	ow, beige,	white, fine to	• • •	SW		
00	2.0/2	-							
05—	2.0/2	-	SAND: Maroon, yellow, ros grained, stiff clay 1', wet.		fine to medium		SP		
110-1									

TITLE: NAS Whiting Field	LOG	of WELL: WHF-1467-2	22R	BOR	ING NO. AST-SB-3	1
CLIENT: SOUTHNAVFACENGCOM				PRO	JECT NO: 7518-30	
CONTRACTOR: Groundwater Protection,	Inc.	DATE STARTED: 0	12/16/93		COMPLTD: 02/19	/93
METHOD: 6.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 88	-98 FT	PROT	ECTION LEVEL: D	
TOC ELEY.: 172.38 FT.	MONITOR INST.: OVA	TOT DPTH: 103FT.		DPTH	ITO¥ FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE	: Site 1467	
FT. FT. SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
10— CLA	ND: Tan to peach, very fine gr		77.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7	SP		
	ined. .YEY SAND: Tan to pink very f	ine grained.		SC		
25— SAI	YEY SAND: Tan to peach very ND: Light pink to dark pink, fine te heavy mineral.			SC		
30— SAI	ID: Off-white, very fine graine vy mineral, mica.	d, well sorted, trace		SP		
	ND: Off-white, fine to coarse (eral.	grained, trace heavy	• • •	SW		
- min	ID: Off-white, fine to medium g eral.	grained, trace heavy		SP		
	ID: Off-white, fine to midium gr vel, trace heavy mineral.	rained some quartz		SP /		

FITLE: NAS Whiting Field	LOG	of WELL: WHF-1467-	22R	BORI	ING NO. AST-SB-31	l
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-30	
CONTRACTOR: Groundwater Protect	ion, Inc.	DATE STARTED:	02/16/93		COMPLTD: 02/19	/93
METHOD: 6.25" HSA	CASE SIZE: 4 inches	SCREEN INT.: 88	98 FT	PROT	ECTION LEVEL: D	
TOC ELEV.: 172.38 FT.	MONITOR INST.: OVA	TOT DPTH: 103FT	-	DPTH	TO T FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE:	Site 1467	
DEPTH F.T. GI 374MWS SAMPLE SAMPLE RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCR AND COMMEN' Continued from	rs	THOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
]	SAND: Off-white, fine to midium gravel, trace heavy mineral.			SP		
55—	SAND: Off-white, fine grained, w heavy mineral, mica.	ell sorted, trace		SP		
60—	SAND: Off-white, very fine grain	ed, reace heavy		SP		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
70—	SAND: Off-white, fine grained, wheavy mineral.	ell-sorted, trace		SP		
75—	SAND: Off-white fine grained, tr well-sorted, mica.	ace heavy mineral,		SP		
80—	SAND: Off-white to pink, fine to trace heavy mineral.	coarse grained,	• • •	SW		
85—	SAND: Yellow, pink, orange, yello grained, trace heavy mineral.	ow, medium to coarse	• • •	SW		
90—	SAND: Pink, orange, yellow, red, grained, trace heavy mineral, mi			SP		
95—	CLAYEY SAND: Pink, orange, recoarse grained, mottled, damp.	d, yellow, fine to		sc		
100—		1467-22R ABB		СН)	

LIENT: SOUTHNAVFACENGCOM ONTRACTOR: Groundwater Protection, Inc. CASE SIZE: 4 inches CASE SIZE: 4 inches SCREEN INT.: 88-98 FT PROTECTION LEVEL D OC ELEV: 172.38 FT. MONITOR INST: 0VA TOT OPTH: 103FT. DETH TO § FT. OGBED BY: N. Pageno MELL DEVELOPMENT DATE: SITE: Site: 1467 SAMPLE ID.: 18 B B B B B B B B B B B B B B B B B B	ITLE: NAS Whiting Field			LOG of	WELL: WHF-1	467-22R	BORIN	G NO. AST-SB-3	1
CASE SIZE: 4 inches SCREEN INT.: 88-98 FT PROTECTION LEVEL: D DC ELEV. 172.38 FT. MONITOR INST.: OVA TOT DPTH: 103FT. DPTH TO © FT. JUNE SIDE: Site 1487 SOL/ROCK DESCRIPTION SAMPLE ID. SEED SY: SAMPLE ID. SAMPLE ID. SEED SY: SAMPLE ID. SEED SY: SAMPLE ID. SEED SY: SAMPLE ID. SAMPLE ID. SEED SY: SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SAMPLE ID. SA	LIENT: SOUTHNAVFACENG	СОМ					PROJE	CT NO: 7518-30	
DOELEY: 172.38 FT. MONITOR INST: OVA TOT DPTH: 103FT. DPTH TO \$ FT. DEBUTY IN Pagano WELL DEVELOPMENT DATE: SITE: Site 1467 SOL/ROCK DESCRIPTION AND CONNENTS CONTINUED from PAGE 2 CLAY: Gray, stiff, wet.	ONTRACTOR: Groundwater	Protection,	Inc.		DATE STAR	TED: 02/16/93		COMPLTD: 02/19	/93
NECL DEVELOPMENT DATE: LABORATORY SAMPLE ID. S SOIL/ROCK DESCRIPTION AND COMMENTS COntinued from PAGE 2 CH. SAMPLE ID. S SOIL/ROCK DESCRIPTION AND COMMENTS COntinued from PAGE 2 CH. CH. CH. CH. CH. CH. CH. CH. CH. CH.	ETHOD: 6.25" HSA		CASE SIZE: 4 inches		SCREEN INT	r.: 88-98 FT	PROTEC	TION LEVEL: D	
SOIL/ROCK DESCRIPTION AND CONNENTS CONTINUED from PAGE 2 CLAY: Gray, stiff, wet.	OC ELEV.: 172.38 FT.		MONITOR INST.: OVA		TOT DPTH:	103FT.	DPTH T	O¥ FT.	
CLAY: Gray, stirf, wet.	IGGED BY: N. Pagano		WELL DEVELOPMENT	DATE:			SITE: S	ite 1467	
CLAY: Gray, stiff, wet.	S AMPLE TO SAMPLE	HEADSPACE (ppm)	AND CO	DMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
						[====			
	+ + + + + + +								

				l Farm	LOG of	WELL: WHF-1467-2	3	BORI	NG NO. NFF-SB-24	1
CLIENT:	SOUTHNAV	FACENGO	OM					PROJ	ECT NO: 7518-40	
CONTRA	CTOR: Grou	ndwater F	rotec	ion		DATE STARTED: 4	/22/92		COMPLTD: 4/22/	92
METHOD); HSA			CASE SIZE: 4 inch		SCREEN INT.: 90.	5'-100.5'	PROTE	ECTION LEVEL: D	
TOC ELI	EV.: 172.57 (FT.		MONITOR INST.: OVA		TOT DPTH: 101FT.		DPTH	TO \$ 90 FT.	
LOGGED	BY: N. Pa	gano		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
DEPTH FT.	BORATORY A	RECOVERY	HEADSPACE (ppm)		CK DESCRIPTION SO		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
									POSTHOLE	2
5—		1.9/2	0.0	SAND: Tan, fine to medium minerals.	ı grained,	trace heavy		SP	4,4,4,4	
10-1		1.7/2	0.0	SANDY CLAY: Orange-red silty.	i and tan,	low plasticity,		sc	7,9,11,12	
15		1.5/2	0.0						6,8,10,11	A.
20-		1.8/2	0.0						8,8,8,10	, , ,
25-		2.0/2	0.0	CLAY: Orange-red and ta SAND: Pink, gray, and tan	, fine to n	nedium grained with		CL	7,8,9,9	a a
30-		1.3/2	0.0	some very fine and coars clay, trace heavy mineral SANDY CLAY: Pink and gr	s.			SC	4,5,7,7	a a
35—		1.8/2	0.0	SAND: Grey, pink, medium fine and very coarse gra heavy minerals, mica.				SP	5,7,8,8	8
40-		1.8/2	0.0					-	6,7,7,8	i i
45-		1.3/2	1.0						5,7,8,8	
50-		2.0/2	0.0	SAND: Pink, red, and gray and very coarse grained			• • •	SW	9,10,12,12	

	106	of WELL: WHF-1467-2	25		3 NO. NFF-SB-2	
LIENT: SOUTHNAVFACENGCOM				PROJEC	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection	T	DATE STARTED: 4	-		COMPLTD: 4/22/	92
IETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 90		PROTEC	TION LEVEL: D	
TOC ELEV.: 172.57 FT.	MONITOR INST.: OVA	TOT DPTH: 101FT.	·		0 🕽 90 FT.	·
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:			SITE: N	orth Fuel Farm	
SAMPLE SAMPLE FECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRI AND COMMENT Continued from	'S	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1.8/2 2.0 lit	AND: Gray, pink, and tan, fine to tle very fine and coarse graine nerals, mica.		• • •	SW	11,12,15,15	
1.1/2 10.0					15,16,16,15	121212
1.5/2 37.0 life	AND: Gray, pink, and tan, fine to tle very fine and coarse graine nerals, mica, slight TCE odor.			SP	8,10,12,12	
1.2/2 65.0 S	AND: Gray, pink and tan, fine to tle very fine and coarse graine inerals, mica.			SP	15,23,22,23	
5 1.7/2 8.0					15,22,25,25	
1.0/2 148.0					Wt. of Rod	
]	AND: Pink, orange, tan, and red rained with little fine sand, silt, inerals and mica, slight odor.		• • •	SW	9,10,11,12	
1.3/2 167.0 W	AND: Tan, light gray, coarse to ith some medium sand and small inerals and mica, slight odor, we	gravel, trace heavy		SP	Wt. of Rod	
5—						
15—						
10		-				

TLE: NAS W					LOG of	WELL: WHF-1467-2	4	BORI	NG NO. NFF-SB-2	
IENT: SOUT	THNAVE	CENGO	OM					PROJ	ECT NO: 7518-40	
ONTRACTOR	: Ground	water f	rotect	ion		DATE STARTED: 4			COMPLTD: 4/23/	92
ETHOD: HSA				CASE SIZE: 4 inch		SCREEN INT.: 85	-95'	PROTE	CTION LEVEL: B	
OC ELEV.: 16	9.77 FT	•		MONITOR INST.: OVA	•	TOT DPTH: 100FT.		DPTH	TO ♀ 88 FT.	
OGGED BY:	N. Paga	no		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
LABORAT	· =	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO	DESCRIPT DMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		1.5/2	5.0	CLAYEY SAND: Brown to r grained, moderate to low p				SC	3,3,3,3	
10—		1.5/2	>50.d	CLAYEY SAND: Brown, ver moderate plasticity, trace odor.				SC	4,4,3,3	v
15—		1.5/2	160.0	CLAYEY SAND: Red-brown very fine to fine grained, petroleum odor.				SC	6,8,22,26	
20-		1.8/2	220.0	CLAY: Gray to rust-red, v plasticity, trace sand. Sli				СН	5,7,8,9	v. v.
25—		1.0/2	2500	SAND: White with black grained, well-sorted Stron				SP	6,11,21,22	A
30-		1.0/2	>5000	SAND: White with black grace coarse grained. Strong h			• • •	SW	12,14,14,15	\ \ \ \ \ \ \ \
35—	7	1.0/2	4000						7,9,9,8	A
40	7	1.5/2	4000	SAND: White, fine to media quartzitic grains moderate hydrocarbon odor.			• • •	SW	9,9,10,12	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
45—		1.5/2	>5000	CLAYEY SAND: Light browwell-sorted.	ın, very fi	ne to fine grained,			11,11,12,12	, , ,
50-		1.4/2	>5000	SAND: White, very fine gra clay. Very strong hydroc				SP	7,7,8,9	
55_]						•		SP /		

LIENT: SOUTHNAVFACENGCOM		LUG 01	WELL: WHF-1467-2	-		ING NO. NFF-SB-2	
ONTRACTOR: Groundwater Protection	n .		DATE STARTED: 4	/23/92	PROJ	COMPLTD: 4/23/	02
METHOD: HSA	CASE SIZE: 4 inch		SCREEN INT.: 85'		PROTI	ECTION LEVEL: B	
TOC ELEV.: 169.77 FT.	MONITOR INST.: OVA		TOT DPTH: 100FT.			TO \$ 88 FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT		101 Br 14. 1001 1.			North Fuel Farm	
DEPTH T. T. T. T. T. T. T. T. T. T. T. T. T. T	SOIL/ROCK	DESCRIPT OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	AND: White to buff, fine to orting. Very strong hydr				SP	14,15,18,20	
1.5/2 >5000 6	ANDY CLAY: Light tan, lo	w to mode	erate plasticity.		SC	12,14,15,15	
	AND: White, very fine to ery well-sorted. Very st				SP	10,10,15,16	
	AND: White, very fine to amp. Strong hydrocarbo		ed, well-sorted,		SP	15,21,33,37	
1.5/2 >5000					·	20,28,30,50	
1.7/2 >5000	AND: White to red to yell oderately to well-sorted ydrocarbon odor.		_		SP	19,20,26,31	~ Z
	AND: White, fine to coars orting. Strong hydrocart		, moderate	•••	SW	23,24,26,32	
1.8/2 5000	AND: White to tan to bro rained, moderate to well- ydrocarbon odor.				SP	13,32,50,50	
2.0/2 >5000 s	AND: Yellow-brown, fine orted, saturated.			• • •	SW	Wt. of Rod	
00-1	ent of the second second	- 21 On 11,	g. plasticity.		-		
			•				

ITLE: NAS Whiting Field North Fuel Farm	LOG of	WELL: WHF-1467-25	5	BORII	NG NO. NFF-SB-8	
LIENT: SOUTHNAVFACENGCOM			·	PROJE	CT NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 4/	24/92		COMPLTD: 4/24/	92
ETHOD: HSA CASE SIZE: 4 inch		SCREEN INT.: 75'-	-90'	PROTE	CTION LEVEL: D	
OC ELEV.: 160.85 FT. MONITOR INST.: OVA		TOT DPTH: 91FT.		DPTH '	TO ¥ 82 FT.	
DGGED BY: N. Pagano WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
HEADS SAMPLE TO SOIT/LOCK (Ppm) AND C	DESCRIPT	ION .	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5 O.0 SAND CLAY: Light orange	with strea	iks of pale gray.		SC	4,5,5,6	
0 - 4.0 SAND CLAY: Light orange dark brown.	with strea	eks of pale gray,		SC	5,6,6,8	" _ " _ " _ "
15—1.0/2 425.0 SAND: Light to dark brown pale gray.	n, streaks	of orange and		SP	8,10,10,12	
1000 SAND: Pale gray, silty, sli	ght odor.			SM	7,7,8,8	
25— 1.5/2 42.0 SAND: Light gray, coarse saturated zone	to very c	oarse, heavy		SP	7,8,8,10	
2.0/2 SAND: Light gray, coarse damp, with 6" of red, yell odor in clay.				SP	10,10,12,12	
25.0 SAND: Light gray to white grained, damp, odor.	e, coarse t	to very coarse		SP	8,8,10,9	
750.0 SAND: Same as above wi buff.	th 6" of cl	ayey sand, pink to		SC	9,10,10,12	
45————————————————————————————————————		coarse grained,		SP	10,11,11,12	
50 - 1.7/2 40.0					13,20,20,23	
55—				SP /	20,22,28,30	

	LUG of N	IELL: WHF-1467-25	BOHI	NG NO. NFF-SB-8	
LIENT: SOUTHNAVFACENGCOM			PROJ	ECT NO: 7518-40	
CONTRACTOR: Groundwater Protection		DATE STARTED: 4/24/	92	COMPLTD: 4/24/9	2
IETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 75'-90'	PROTE	CTION LEVEL: D	
OC ELEV.: 160.85 FT.	MONITOR INST.: OVA	TOT DPTH: 91FT.	DPTH	TO ♀ 82 FT.	
OGGED BY: N. Pagano	WELL DEVELOPMENT DATE:		SITE:	North Fuel Farm	-
SAMPLE SAMPLE THE SAMPLE THE SAMPLE THE SAMPLE THE SAMPLE THE SAMPLE THE SAMPLE THE SAMPLE SA	SOIL/ROCK DESCRIPTIO AND COMMENTS Continued from PAG	LITHOLOGIC	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA
	ND: Light gray, coarse to very coan 3" of brown sandy clay, damp.		SP		
	ND: Light gray, brown to yellow, co arse grained, with 2" of sandy brow y.		SP	25,28,32,33	
_	ND: Light gray with red streaks, co arse grained, with 2" of clayey san	1 ' - '	SP	20,28,29,32	2 2 2 1
	ND: Light gray to buff, coarse to vined, damp with sandy clay, some		SP	25,29,23,30	ストストスを変換
_	ND: Light gray, brown, red streaks, arse grained, gravelly, some silt an	1 1	SP	30,35,45,42	
	ND: Red to tan, coarse to very coanse mica, very damp.	arse grained,	SP	29,35,41,42	
- 2.0/2 co	ND: Light gray, brown and red ban erse grained, saturated, mica over d light grey clay, good plasticity, m	8" layer of pink • •	SW	Wt. OF Rod	
90-					E
05—					

116	: NAS Whitin	y rie	10 1101	(II F GE	raim	LOG of	WELL: WHF-1467-2	6	BORI	NG NO. NFF-SB-3	
LIEN	IT: SOUTHNA	VFA	CENGC	OM					PROJ	ECT NO: 7518-40	
CONT	RACTOR: Gro	undw	ater P	rotect	ion		DATE STARTED: 4	/25/92		COMPLTD: 4/25/	92
METH	OD: HSA				CASE SIZE: 4 inch		SCREEN INT.: 73	-83'	PROTE	CTION LEVEL: B	
TOC E	LEV.: 166.28	FT.			MONITOR INST.: OVA		TOT DPTH: 90FT.		DPTH	TO ₹ 74 FT.	
LOGG	ED BY: N. Pa	agan	0		WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm	
0ЕРТН FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC	SOIL CLASS	BLOWS/6IN	WELL DATA
· -				0.0						POSTHOLE	
5			1.0/2	0.0	SILTY SAND: Dark red-br clay.	own, fine	grained, trace		SM	2,3,4,4	
10-			1.5/2	0.0						14,15,21,22	12121
15—			1.5/2	20.0	SAND: Red-brown to gray	layers, f	ine grained.		SP	12,14,14,17	21 21 21
20 -			1.5/2	NA	CLAYEY SAND: Light gray	, fine gra	ined.		SC	6,8,10,12	21 21 21
25—			0.6/2	20.0	SAND: Light gray, fine to	medium gr	ained.		SP	9,10,11,8	,
30—			0.8/2	46.2						8,9,8,8	
35—			0.8/2	37.6	SAND: As above, with qua	rtzitic gra	avel.		SP	9,11,11,14	
40—	-	Z	1.3/2	398.0	SAND: Red-brown to light medium grained with some			• • •	SW	5,9,14,14	1212121
45—			0.8/2	952.0						14,14,17,21	7 2 2 2
50			0.8/2	675.6					,	15.20,25,29	
55—	-						•				

TITLE: NAS Whiting Field North Fuel F	arm .	LOG of	WELL: WHF-1467-2	26	BORIN	IG NO. NFF-SB-3	
CLIENT: SOUTHNAVFACENGCOM		<u> </u>			PROJE	CT NO: 7518-40	
CONTRACTOR: Groundwater Protection			DATE STARTED: 4	1/25/92		COMPLTD: 4/25/	92
METHOD: HSA	CASE SIZE: 4 inch	,	SCREEN INT.: 73	'-83'	PROTE	CTION LEVEL: B	
TOC ELEV.: 166.28 FT.	MONITOR INST.: OVA		TOT DPTH: 90FT.		DPTH T	' 0 ♀ 74 FT.	
LOGGED BY: N. Pagano	WELL DEVELOPMENT	DATE:			SITE: N	North Fuel Farm	
DEPTH SAMPLE SAMPLE OUT STANDER RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0.8/2 >1000						14,18,21,23	
60 -	AND: Light red-brown to	white, fin	e grained.		SP	20,22,26,28	78.28.28.28.2
0.8/2 >1000						23,42,44,46	
70 - 0.8/2 >1000						23,34,36,41	
75 1.0/2 S	AND: Dark red-brown to	light gray	r, fine grained.		SP	10,11,13,14	
1.8/2 40.0 m	LAYEY SAND: Light gray icaceous, wet.	to light b	prown, fine grained,		SP	6,5,5,7 Wt. of Rod	
85—							
	LAY: Light brown to dark et.	gray, sti	ff, micaceous,		CL	4,6,5,6	
	AND: Light brown, fine to eavy minerals, wet.	o medium (grained, trace		SP	10,8,8,14	
100-							
105—							
110			·				

SITE: North Fuel Farm SITE	TITLE: NAS Whiting Field	L	OG of WELL: WHF-1467-	27	BOR	ING NO. NFF-SB-4	0
ASTRUCT HAS CASE SIZE: 4 inch SCREEN INT.: 100"-115' PROTECTION LEVEL: D TOC ELEV-LIT3.74 FT. MONITOR INST.: 0VA TOT OPTH: 116FT. OPTH TO \$ FT. SITE: North Fuel Farm MELL DEVELOPMENT DATE: SITE: North Fuel Farm SOL ABDRATORY STATE SITE: North Fuel Farm SOL ABDRATORY STATE SITE: North Fuel Farm AND COMMENTS SITE: North Fuel Farm POSTHOLE LADRATORY STATE SITE: North Fuel Farm SOL ABDRATORY STATE SITE: North Fuel Farm POSTHOLE LATE OF STATE SITE: North Fuel Farm POSTHOLE LATE OF STATE SITE: North Fuel Farm POSTHOLE CLAYEY SAND: Reddish orange, soft, moderate, plasticity. LIJZ 0.0 SAND: Reddish orange, fine to medium grained. SSC 5.2.22 LIJZ 0.0 SAND: Red-orange and white banded, fine grained. SSP 9.10,11.10 SAND: White and orange, fine grained, trace heavy SSP 9.23,26,21 LIJZ 0.0 SAND: White and orange, fine to medium grained, rrace heavy minerals. SSP 9.18,26,25 LIJZ 0.0 SAND: White and orange, fine to medium grained, rrace heavy minerals. SSP 9.18,13,15 LIJZ 0.0 SAND: White and orange, fine to medium grained, over clayey sand, moderate cohesiveness. SSP 13,11,15,16	LIENT: SOUTHNAVFACENGCOM				PROJ	JECT NO: 7518-40	
MONITOR INST: OVA TOT DPTH: 118FT. DPTH TO \$ FT.	CONTRACTOR: Groundwater Prot	ction	DATE STARTED:	4/26/92		COMPLTD: 4/26/	92
MELL DEVELOPMENT DATE: SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm SITE: North Fuel Farm BLOMS/G-IN BLOMS/G-IN BLOMS/G-IN POSTHOLE 1.1./2 0.0 SANDY CLAY: Reddish orange, soft, moderate, plasticity. CLAYEY SAND: Reddish orange, fine to medium grained, good cohesivness SP 9,10,11,10 SAND: Red-orange and white banded, fine grained. SP 9,10,11,10 SAND: White and orange, fine grained, trace heavy minerals. SP 9,23,28,21 SAND: White and orange, fine to medium grained. SP 9,18,26,25 SAND: White and orange, fine to medium grained, trace heavy minerals. SAND: White and orange, fine to medium grained, trace heavy minerals. SAND: White and orange, fine to medium grained, trace heavy minerals. SAND: White and orange, fine to medium grained, over clayey sand, moderate cohesiveness. SAND: White and yellow, fine to medium grained, trace SP 13,11,10,10 SAND: White and yellow, fine to medium grained, trace SP 13,11,10,10	METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 10	0'-115'	PROT	ECTION LEVEL: D	
LABORATORY	TOC ELEV.: 173,74 FT.	MONITOR INST.: OVA	TOT DPTH: 116FT.		DPTH	TO ♀ FT.	
SANDY CLAY: Reddish orange, soft, moderate, SC 2,2,4,4	OGGED BY: N. Pagano	WELL DEVELOPMENT DAT	E:		SITE:	: North Fuel Farm	
1.4/2	DEPTH OFPTH SAMPLE SAMPLE RECOVERY HEADSPACE	SOIL/ROCK DESI AND COMME		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
1.4/2 0.0 plasticity. 2,2,4,4 2,2,4,4 2,2,4,4 2,2,4,4 2,2,4,4 2,2,4,4 2,2,4,4 2,2,4,4 2,3,4 2,4,4						POSTHOLE	
10— 1.3/2 0.0 CLAYEY SAND: Reddish orange, fine to medium grained. 5.2.2.2 6.2.2.2		_	soft, moderate,		sc	2,2,4,4	12121
1.3/2 0.0 grained, good cohesivness 5.2,2,2 1.1/2 0.0 SAND: Red-orange and white banded, fine grained. SP 9,10,11,10 1.8/2 0.0 SAND: Red-orange, silt to very fine grained. SM 7,14,17,16 SAND: White and orange, fine grained, trace heavy minerals. SAND: White and orange, fine to medium grained, trace heavy minerals. SAND: White and orange, fine to medium grained, trace heavy minerals. SP 9,18,26,25 1.5/2 0.0 SAND: White and orange, fine to medium grained, SP 8,18,13,15 SAND: White and orange, fine to medium grained, over clayey sand, moderate cohesiveness. SP 13,11,10,10 SAND: White and yellow, fine to medium grained, trace heavy minerals. SP 13,13,15,16		plasticity.					
20— 1.8/2 0.0 SAND: Red-orange, silt to very fine grained. 5M 7,14,17,16 25— 1.5/2 0.0 SAND: White and orange, fine grained, trace heavy minerals. 5P 9,23,26,21 25— 1.5/2 0.0 SAND: White and orange, fine to medium grained. trace heavy minerals. 5P 9,18,26,25 25— 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 5P 8,18,13,15 26— 1.5/2 0.0 SAND: White and orange, fine to medium grained, over clayey sand, moderate cohesiveness. 1.5/2 0.0 SAND: White and yellow, fine to medium grained, trace heavy minerals.		1	e, fine to medium		sc	5,2,2,2	
1.8/2 0.0 SAND: White and orange, fine grained, trace heavy minerals. 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 1.5/2 0.0 SAND: Orange and white, fine to medium grained, over clayey sand, moderate cohesiveness. 1.1/2 0.0 SAND: White and yellow, fine to medium grained, trace heavy minerals.		SAND: Red-orange and white	banded, fine grained.		SP	9,10,11,10	
1.5/2 0.0 minerals. 9,23,26,21 1.3/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 9,18,26,25 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 1.5/2 0.0 SAND: Orange and white, fine to medium grained, over clayey sand, moderate cohesiveness. 1.5/2 0.0 SAND: White and yellow, fine to medium grained, trace heavy minerals.		SAND: Red-orange, silt to ver	y fine grained.		SM	7,14,17,16	"
1.3/2 0.0 trace heavy minerals. 9,18,26,25 1.5/2 0.0 SAND: White and orange, fine to medium grained, trace heavy minerals. 9,18,26,25 8,18,13,15 1.5/2 0.0 SAND: Orange and white, fine to medium grained, over clayey sand, moderate cohesiveness. 1.1/2 0.0 SAND: White and yellow, fine to medium grained, trace heavy minerals.			grained, trace heavy		SP	9,23,26,21	~ " ~ " ~ " ~
1.5/2 0.0 trace heavy minerals. SAND: Orange and white, fine to medium grained, over clayey sand, moderate cohesiveness. SAND: White and yellow, fine to medium grained, trace heavy minerals.	30 - 1.3/2 0	1	to medium grained.		SP	9,18,26,25	1212121
1.5/2 0.0 clayey sand, moderate cohesiveness. 1.1/2 0.0 SAND: White and yellow, fine to medium grained, trace heavy minerals.			to medium grained,		SP	8,18,13,15	
1.1/2 0.0 heavy minerals.					SP	13,11,10,10	
			o medium grained, trace		SP	13,13,15,16	
11,12,14,14						11,12,14,14	

FITLE: NAS Whiting Field		LOG of WELL: WHF-1467-	27 BC	RING NO. NFF-SB-4	0
LIENT: SOUTHNAVFACENGCOM			PR	OJECT NO: 7518-40	
CONTRACTOR: Groundwater Protec	ction	DATE STARTED:	4/26/92	COMPLTD: 4/26/	92
METHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 10	0'-115' PRC	TECTION LEVEL: D	
TOC ELEV.: 173.74 FT.	MONITOR INST.: 0VA	TOT DPTH: 116FT.	DP1	H TO \$ FT.	
.OGGED BY: N. Pagano	WELL DEVELOPMENT D	ATE:	SIT	E: North Fuel Farm	
SAMPLE SAMPLE THE SAMPLE THE SPACE (PM)	SOIL/ROCK D AND CON Continued f	MENTS	LITHOLOGIC SYMBOL SOIL CLASS	BLOWS/8-IN	WELL DATA
1.0/2 0.0	SAND: White, silt-sized to fi minerals, some mica.	ne grained, trace heavy	SP	12,12,9,15	
1.5/2	SAND: White with black band minerals.	ds, fine grained, heavy	SP	14,17,18,21	1 2 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1.1/2 0.0	SANDY CLAY: Dark orange, fine to coarse grained.	yellow, and white mottled,	sc	12,10,10,15	
70 7 1.3/2 0.0	CLAYEY SAND: Flesh, white, mottled, fine grained.	, dark orange, and yellow	sc	13,15,22,23	
75 7 1.0/2 0.0	SAND: White, fine grained, to packed hard, damp.	race heavy minerals,	SP	14,13,25,26	
1.0/2 0.0	SAND: White, pink, and dark coarse grained, some quart minerals.	- · · · · ·	SP	18,23,38,47	
1.2/2	SAND: Orange, yellow, white fine to coarse grained.	e, dark orange mottled,	SP	23,25,40,50	
90 -	SAND: Dark orange, orange mottled, fine to medium grai		SP	20,32,43,50	
95 1.5/2 0.0				16,20,27,34	
0.0	SAND: Orange and white, fil	ne to medium grained.	SP	Wt. of Rod	
05— 2.0/2 G.C.	SAND: Grayish-white, silt to	o fine grained, saturated.	SM	N.M.	
110	PAGE 2	! of 1467-27 ABB	ENVIRONME	THE SERVICES	. INC.

IENT: SOUTHNAVFA	CENICOOM					PRO	ECT NO: 7518-40	
NTRACTOR: Groundw				DATE STARTED: 4	1/26/92	rkos	COMPLTD: 4/26/	92
	ater Protection	CASE SIZE: 4 incl		SCREEN INT.: 100		PROT	ECTION LEVEL: D	
ETHOD: HSA		-		 	- 110	1		
OC ELEV.: 173.74 FT.		MONITOR INST.: 0		TOT DPTH: 116FT.		 	TO T FT.	
OGGED BY: N. Pagano		WELL DEVELOPME	NT DATE:			<u> </u>	North Fuel Farm	
LABORATORY AND SAMPLE IO. SAMPLE IO.	RECOVERY HEADSPACE (ppm)	AN	OCK DESCRIPT D COMMENTS Ed from PA		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5—								
0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -								

	LOG of WELL: WHF-1467-28	,	BUN	ING NO. NFF-SB-20	_
IENT: SOUTHNAVFACENGCOM			PRO.	JECT NO: 7518-30	
INTRACTOR: Groundwater Protection	DATE STARTED: 4/	27/92		COMPLTD: 4/27/	92
THOD: HSA	CASE SIZE: 4 inch SCREEN INT.: 90'-	105'	PROT	ECTION LEVEL: D	
OC ELEV.: 173.03 FT.	MONITOR INST.; OVA TOT DPTH: 106FT.		DPTH	TO ♀ 100 FT.	
GGED BY: J. Williams/N. Pagano	WELL DEVELOPMENT DATE: 5/22/92		SITE	: North Fuel Farm	
SAMPLE SAMPLE PECOVERY (PDM)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	
-				·	
				POSTHOLE	
	YEY SAND: Orange, fine to medium grained with a silt and clay, trace heavy minerals.		SC	10,4,5,5	
	DY CLAY: Tan, orange, light gray, red, silty, trace vy minerals and mica, low plasticity.		sc	10,9,9,10	
trac	DY SILTY CLAY: Tan, orange, light gray, red, e heavy minerals and mica, low to moderate		sc	5,6,6,7	
) -	ticity.			9,10,10,10	
0.5/2 N.R.				No Blw. Ct.	
1.5/2 15.0 SAN clay	D: Pink, gray, orange, medium grained, sandy '.		SC	8,10,10,10	
1.8/2				7,7,6,5	
1.8/2 20.0 SAM	iD: Tan, fine to medium grained.		SP	5,6,6,8	
5				7,7,5,6	
1.9/2 9.0 SAF	ID: Tan, fine to medium grained.		SP	12,14,15,15	

ENT: SOUTHNAVE	CENGO	OM		<u>L</u>			PROJ	ECT NO: 7518-30	
NTRACTOR: Ground			ion		DATE STARTED): 4/27/92		COMPLTD: 4/27/	92
THOD: HSA			CASE SIZE: 4 inch		SCREEN INT.:	90'-105'	PROTE	CTION LEVEL: D	
C ELEV.: 173.03 FT	•		MONITOR INST.: OVA		TOT DPTH: 106	FT.	DPTH	TO ₹ 100 FT.	
GGED BY: J. William		gano	WELL DEVELOPMENT	DATE: 5/2	22/92		SITE:	North Fuel Farm	
L: LABORATORY USA	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C Continued	OMMENTS		LITHOLOGIC	SOIL CLASS	BLOWS/6-IN	WELL DATA
	1.5/2	325.0						15,18,20,28	
	1.5/2	14.0	SAND: Tan, fine to medium	grained.			SP	28,28,29,27	
	1.5/2	110.0						38,42,48,42	
	1.3/2	240.0	SAND: Tan, fine to medium	ı grained.			SP	35,45,46,45	
	1.8/2	150.0						20,25,25,30	
	1.0/2	50.0	SAND: Tan, fine to medium	n grained,	saturated.		SP	27,27,27,29	
5—									
)— - - -									
	1.0/2	\$5000	SAND: Coarse to very co saturated, very strong of		ea, angular,	• • •	SW	NA	

	LOG of WELL: WHF-146	7-29	BORING NO. NFF-SB-16		
LIENT: SOUTHNAVFACENGCOM		ş	PROJECT NO: 7518-40		
ONTRACTOR: Groundwater Protection	DATE STARTE	D: 4/27/92	COMPLTD: 4/28	/92	
ETHOD: HSA CASE	SIZE: 4 inch SCREEN INT.:	80'-95' P I	ROTECTION LEVEL: D		
OC ELEV.: 168.96 FT. MONI	TOT DPTH: 100	FT. D	PTH TO ♀ 90 FT.		
OGGED BY: K. Murray / N. Pagano WELL	DEVELOPMENT DATE: 5/22/92	S	ITE: North Fuel Farm		
SAMPLE SAMPLE (PPM)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	BLOWS/6-IN		
3.0 SAND: Bro uncompact	own, medium to coarse grained, ted.	S	4,5,5,6		
2.0/2 8.0 CLAYEY S grained.	AND: Brown to dark red, fine to coarse	S	10,9,9,10		
5 - 0.5/2 8.0			8,8,8,10		
	.AY: Orange to red, medium to coarse 12") over clay, orange, medium to tight on.	s	5,6,6,7		
5—————————————————————————————————————	ange to pink, medium to coarse grained.	S	P 5,5,5,6		
	te, very fine to fine grained, trace clay, d, slightly damp.	S	7,7,7,10		
5 - 3.0 SAND: Light	ht gray to white as above.	S	7,8,8,10		
	ite to light gray, very fine to coarse ith some gravel sized quartz, poorly sorte		7,8,10,10		
2.0/2 20.0 SAND: Whi	ite as above with some quartz, trace clay	• • • S	W 12,12,14,14		
2.0/2	•		10,14,13,12		

					LUG DI	LOG of WELL: WHF-1467-29			BORING NO. NFF-SB-16			
LIENT: SOUT								PROJ	ECT NO: 7518-40			
CONTRACTOR:	Groundwa	ater Pi	rotecti			DATE STARTED: 4			COMPLTD: 4/28/	92		
METHOD: HSA				CASE SIZE: 4 inch		SCREEN INT.: 80			ECTION LEVEL: D			
FOC ELEV.: 16				MONITOR INST.: OVA		TOT DPTH: 100FT.			TO \$ 90 FT.			
OGGED BY:	K. Murray	/ N. P	agano	WELL DEVELOPMENT	DATE: 5/2	22/92		SITE:	North Fuel Farm			
L LABORAT SAMPLE	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA		
57—		1.5/2	1700						12,12,13,12			
52—		1.5/2		SAND: White, very fine to well-sorted.	fine graine	ed, moderate to		SP	Wt. of Rod			
37—		1.5/2		SAND: White, very fine grawell-sorted.	nined, trac	e clay, very		SP	12,12,17,17	X _ X _ X _ X		
72—		1.7/2	-5000						Wt. of Rod			
77—		1.6/2		SAND: White, stained black grained, trace heavy mine well-sorted, slightly damp	rals, mode		78.078.07 20.028.02	SP	18,20,21,20			
B2—		1.0/2		SAND: White and light orar fine grained, very well-so		ed, very fine to		SP	12,15,15,16			
B7—		1.4/2		SAND: White to rust orang poor to moderately sorted		coarse grained,	• • •	SW	18,25,30,32			
92—		2.0/2	220.0	SAND: White to buff, as al	bove, satu	ırated.	• • •	SW	8,10,11,11			
97—		2.0/2	0.0	SAND: White, very fine to saturated.	medium gr	ained, well graded,	• • •	SW	11,11,19,28			
02—		2.0/2	0.0	SAND: Red to beige, fine saturated.	to coarse	grained,	• • •	SW	11,10,8,11			

TITLE	E: NAS W	hiting	Fie	ld Nor	th Fue	I Farm	LOG of	F WELL: WHF-1467-3	0	BOR	ING NO. NFF-SB-22	2
CLIEN	NT: SOUT	HNA	VFA	CENG	ОМ					PRO.	JECT NO: 7518-30	
CONT	RACTOR	Gro	undw	rater f	rotec	ion		DATE STARTED: 4	/28/92		COMPLTD: 4/29/	92
METH	OD: HSA					CASE SIZE: 4 inch		SCREEN INT.: 87'-	-102'	PROT	ECTION LEVEL: C, () .
TOC E	ELEV.: 17	4.23	FT.			MONITOR INST.: OVA	\	TOT DPTH: 102.5FT	•	DPTH	TO ♀ 93.5 FT.	
LOGG	ED BY:	N. Pa	gan	0		WELL DEVELOPMENT	WELL DEVELOPMENT DATE:			SITE	North Fuel Farm	
0ЕРТН FT.	LABORAT SAMPLE	ORY ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	TION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
-											POSTHOLE	
5—				1.8/2	0.0	SAND: Orange, fine to med and clay.	dium grain	ed with some silt		SM	7,5,7,7	
10				1.8/2	0.0	SANDY CLAY: Tan, orange	e, red, low	plasticity.		sc	8,10,12,15	
15—				1.3/2	0.0	SANDY CLAY: Pink and gra	ay, low pla	asticity.		SC	5,6,6,8	1 2 1 2 1 2 1
- 02 				1.8/2	0.0	CLAY: Light gray and pink silt, low to moderate plast		little fine grained,		CL	7,12,15,15	"
- 25 - -				1.4/2	0.0	SAND: Light gray and tan grained, trace fine and veheavy minerals.			• • •	SW	9,15,20,20	
30—				1.4/2	13.0						12,18,18,20	21121121
35— - -				1.3/2	5.0	SAND: Light gray and tan with some small to large q sand, trace heavy mineral	quartzite g	ravel and fine	• • •	SW	7,9,10,10	21 21 21 21
10 - - -				1.3/2	49.0						9,10,10,10	
45— - -			Z	1.2/2	22.0						10,10,11,10	1 2 1 2 1
50— 				1.3/2	250.0	SAND: Light gray to pink, with some medium sand ar minerals.				SP	9,10,12,11	

		rth Fue	. 1 3/11	LOG of	WELL: WHF-1467-	30	BORI	ING NO. NFF-SB-2	2
LIENT: SOUTHN	AVFACENG	СОМ					PROJ	ECT NO: 7518-30	
CONTRACTOR: Gr	oundwater	Protect	tion		DATE STARTED:	4/28/92		COMPLTE: 4/29/	/92
IETHOD: HSA			CASE SIZE: 4 inch		SCREEN INT.: 87	7'-102'	PROT	ECTION LEVEL: C, I	0
OC ELEV.: 174.2	3 FT.		MONITOR INST.: OVA		TOT DPTH: 102.5F	· T.	DPTH TO ♀ 93.5 FT.		
OGGED BY: N. F	agano		WELL DEVELOPMENT	WELL DEVELOPMENT DATE:		SITE:	North Fuel Farm		
LABORATOR' SAMPLE ID.	SAMPLE	HEADSPACE (ppm)	SOIL/ROCK AND CO Continued	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]									1
57—	1.1/2	240.0	SAND: Light gray, fine to reheavy minerals and mica.	medium gra	ained, trace		SP	Wt. of Rod	7
)2—]	1.8/2	60.0	SAND: Light gray, medium little fine and very coarse mica, and heavy minerals.		- '	• • •	SW	Wt. of Rod	
17-	1.3/2	373.0	SAND: Light gray, fine to a very fine sand, silt, and cland mica.	_			SP	10,12,12,15	A
22—	1.3/2	110.0	SAND: Light gray, fine to a gravel, coarse to very coasilt, clay, heavy minerals, a	arse sand		• • •	SW	12,15,18,20	
77—	1.8/2	60.0	SAND: Light pink to gray, grained with some small grand mica.			• • •	SW	18,18,19,20	
32-	1.9/2	150.0	SAND: Light gray and pink with some coarse grained, grained, and small gravel, mica. Petroleum odor det	and little trace hea	very coarse	• • •	SW	15,15,17,16	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
17—	1.8/2	175.0	SAND: Pink to red, coarse with some small gravel and silt, clay, heavy minerals, i	l little med	dium sand, trace	• • •	SW	18,17,18,18	
92—	1.3/2	800.0	SAND: Orange, red, and gr with little coarse and very gravel, trace silt, clay, he Strong petroleum odor.	coarse s	sand and small	• • •	SW	12,17,17,20	
97—	2.0/2	200.0	SAND: Red, fine to coarse saturated.	_		• • •	SW	Wt. of Rod	
	2.0/2		SILTY SAND: Red, gold, a with trace of clay. CLAYEY SAND: Mottled re fine grained, very low plas	d/gold/ta	-		sc	3,4,4,10	

TITLE: NAS Whiting Field	1		LOG of	WELL: WHF-1467-3	1	BOR	ING NO. NFF-SB-3	9
CLIENT: SOUTHNAVFACE	ENGCOM					PROJ	JECT NO: 7518-40	
CONTRACTOR: Groundwa	ter Protect	ion		DATE STARTED: 5	/9/92		COMPLTD: 5/9/9	32
METHOD: HSA		CASE SIZE: 4 inch		SCREEN INT.: 99'	-114'	PROTI	ECTION LEVEL: D	
TOC ELEV.: 171.21 FT.		MONITOR INST.: OVA		TOT DPTH: 125FT.		DPTH	TO ¥ 102 FT.	
LOGGED BY: C. Douse/N	I. Pagano	WELL DEVELOPMENT	DATE:	·		SITE:	North Fuel Farm	
T LABORATORY BY WE SO WANTED TO	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT OMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							POSTHOLE	
_								
52	.0/2 0.0	CLAYEY SAND: Reddish br	own, fine	to medium		sc		
		grained.						
10—								
2	.0/2 0.0							
15—								
2	.0/2 0.0							
20	.8/2 0.0	CLAYEY SAND: Light redd	ish brown	, beige, fine		sc		
		grained, moderate clay.						
25-		SAND: Light reddish brown	n, beide, r	ose, fine grained.		SP		
	.2/2 0.0	Grand. Eight radian brown	,, = a.g., .					
30 - 1	.6/2 0.0	CLAYEY SAND: Light redd to medium grained.	ish brown	, beige, rose, fine		SC	•	
		9						
35	.0/2 0.0	CLAYEY SAND: Rose, beig	je, fine to	medium grained.		sc		
40		SAND: Rose, beige, little o	day, fine	to medium		SP		
	.6/2 0.0	grained.	,,					
45	.9/2 2.0	SAND: Rose, beige, fine to gravels.	omedium	grained, moderate		SP		
		g 1 0.11			:			
50—	.9/2 4.0							
	.572 4.0						5.1	
55		SAND: Beige-white, with s	ome rose	fine to medium		SP	'	
2	0.0	grained.	,5 1036	, to incordin		: :		
=								
60	.3/2 0.0	CLAYEY SAND: White, beig	gé, rose, i	fine grained.		SC	·	
j [11

IENT: SOUTHNAVFACENGCOM			PRO	DJECT NO: 7518-40		
ONTRACTOR: Groundwater Protection		DATE STARTED: 5/9/	- F	COMPLTD: 5/9/92		
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 99'-11	4' PRO	PROTECTION LEVEL: D		
OC ELEV.: 171.21 FT.	MONITOR INST.: OVA	TOT DPTH: 125FT.	DPTI	H TO 및 102 FT.		
OGGED BY: C. Douse/N. Pagano	WELL DEVELOPMENT DATE:		SITE	: North Fuel Farm		
RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAG	ON SEE 1	SYMBOL SOIL CLASS	BLOWS/6-IN	WELL DATA	
	YEY SAND: White, beige, rose, find		- sc			
-	D: White, fine to medium grained.	_	SP			
1.6/2 26.0 SAN	D: White, beige, rose, fine to medi	um grained.	SP		1212121	
	D: Reddish brown, beige, fine to n erate gravels.	nedium grained,	SP			
1.7/2 10.0						
2.0/2 50.0 SAN	D: Beige, rose, fine to medium gra	ined.	SP ,			
2.0/2 2.0						
	D: Beige to white, fine to medium rated.	grained,	SP			
CLAY	Y: Gray, soft.	. =	CH			

TITLE: NAS W	hiting Fiel	d Nort	h Fuel	Farm	LOG of	WELL: WHF-1467-3	32	BORI	NG NO. NFF-SB-10	l	
LIENT: SOUT	HNAVFAC	ENGC	OM					PROJ	ECT NO: 7518-40		
CONTRACTOR:	Groundw	ater P	rotecti	on		DATE STARTED: 5	/10/92		COMPLTD: 5/11/9	2	
METHOD: HSA				CASE SIZE: 4 inch	SCREEN INT.: 82'-97'			PROTI	PROTECTION LEVEL: D		
TOC ELEV.: 16	2.31 FT.			MONITOR INST.: OVA		TOT DPTH: 100FT.		DPTH	TO ₹ 85 FT.		
OGGED BY: I	M. Wilkers	on/N. I	agand	WELL DEVELOPMENT	DATE:			SITE:	North Fuel Farm		
E L' LABORAT E SAMPLE	SAMPLE SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK AND C	DESCRIPT	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
5	<u> </u>	1.0/2	0.0	SANDY CLAY: Red, mediun	n grained.			SC	NA		
0-		1.5/2		CLAY: Orange with pink st plasticity.	reaks, hai	rd, moderate		CL	7,20,25,25		
15		2.0/2	10.0	SAND: Pale grey, silt to m	edium gra	ined, slight odor.		SP	7,8,8,8	7 2 2 2 2	
20—		2.0/2	0.0						4,5,6,6	2" 2" 2" 2	
25—		2.0/2	0.0	SAND: Orange, yellow, da layered, silt to medium gr		and pale gray		SM	6,6,8,8	1 2 2 2 1	
30—	7	2.0/2	0.0	SAND: Pale gray, silt to modor.	nedium gra	ined, loose, slight		SM	4,8,8,10		
35—		1.8/2	0.0						3,7,7,7		
40		1.0/2	0.0	SAND: Same as above wi	th some or	ange color.		SM	6,7,10,10	2121212	
45— -		1.0/2	0.0	SAND: Gray and white, lo	ose.			SP	18,15,19,20		
50—		1.0/2	5.0	SAND: Pink and gray, silt	to medium	grained, loose.	12/2	SM	17,18,18,18		

+F41=- CO.151			el Farm	LOG of	WELL: WHF-1467-	32		NG NO. NFF-SB-10)
LIENT: SOUT			- 1		I	- /- /	PROJ	ECT NO: 7518-40	
ONTRACTOR:		er rrote			DATE STARTED:			COMPLTD: 5/11/9	92
ETHOD: HSA			CASE SIZE: 4 inch		SCREEN INT.: 82			CTION LEVEL: D	
OC ELEV.: 162		/\ D===		MONITOR INST.: 0VA TOT DPTH: 100FT.			TO ¥ 85 FT.		
DGGED BY: N	1. Wilkerson		NO WELL DEVELOPMENT	DATE:		····	L	North Fuel Farm	
LABORATO SAMPLE	SAMPLE SAMPLE SAMPLE	RECOVERY HEADSPACE (ppm)	SOIL/ROCK AND CO	OMMENTS		LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
]	1.0	0/2				7.7	SM		77
8	1.0	0.0						20,25,25,24	
<u> </u>	1.0	5.0	SAND: Light brown, silt to	medium gr	ained, loose.		SM	20,22,24,24	
; ; ;	1.0	7.0	SAND: Light brown and pin moderate plasticity.	nk over or	ange-red clay,		SC	10,10,12,13	
1	1.0	3.0	SAND: Light brown with ora grained, loose.	ange band	ds, silt to medium		SM	Wt. of Rod	
	1.0	0.0	SAND: Light brown to oran silt and mica, loose.	nge, mediu	m grained, some		SP	28,35,39,37	
	1.0	0.0	SAND: Same as above, slig	ght odor.			SP	17,18,18,20	
1	0.9	15.0	SAND: Orange, medium to o saturated.	coarse gr	ained, some silt,	• • •	SW	16,16,15,17	
- 			SAND: Beige, fine to coars saturated,	se graine	d, well graded,				
<u>-</u>							-		

ITLE: NAS Whiting Field North Fuel F	LOG of	WELL: WHF-1467-33		BORI	NG NO. NFF-SB-20	
LIENT: SOUTHNAVFACENGCOM				PROJ	ECT NO: 7518-40	
ONTRACTOR: Groundwater Protection		DATE STARTED: 5/1	11/92		COMPLTD: 5/12/9	2
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 69'-	94'	PROTE	ECTION LEVEL: 8	
OC ELEY.: 189.88 FT.	MONITOR INST.: OVA	TOT OPTH: 84FT.		DPTH	TO ♀ 77.66 FT.	
OGGED BY: J. Williams/A. Stodghill	WELL DEVELOPMENT DATE: 5/	23/92		SITE:	North Fuel Farm	
SAMPLE SAMPLE SAMPLE (PDM)	SOIL/ROCK DESCRIPT AND COMMENTS	ION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					POSTHOLE	E
	AYEY SAND: Orange, fine to medi me silt and clay, trace heavy min			SC	10,4,5,5	212121
1 7 1 1 1	NDY CLAY: Tan, orange, light gra avy minerals and mica, low plastic			SC	10,9,9,10	1 1 1 1 1
- tr	ANDY SILTY CLAY: Tan, orange, li ace heavy minerals and mica, low asticity.			SC	5,6,6,7	
0 - 1.8/2 15.0	asticity.				01,01,01,6	
0.5/2 N.R.					No Blw. Ct.	
1 7 1 1 1	AND: Pink, gray, orange, medium g ay.	rained, sandy		SP	8,10,10,10	7" 2" 2" 2"
1.8/2 90.0					7,7,6,5	
0— 1.8/2 20.0 S	AND: Tan, fine to medium grained.			SP	5,6,6,8	2" 2" 2" 4
1.3/2 80.0					7,7,5,6	
	PAGE 1 of 140	·		SP_	TAL SERVICES	

TLE: NAS Whiting Field North Fuel Fa	LOG of	WELL: WHF-1467-33	BORING NO. NFF-SB-20	
IENT: SOUTHNAVFACENGCOM			PROJECT NO: 7518-40	
INTRACTOR: Groundwater Protection		DATE STARTED: 5/11/92	COMPLTD: 5/12/92	2
ETHOD: HSA	CASE SIZE: 4 inch	SCREEN INT.: 69'-94'	PROTECTION LEVEL: 8	
OC ELEV.: 169.86 FT.	MONITOR INST.: OVA	TOT DPTH: 84FT.	DPTH TO ¥ 77.66 FT.	
OGGED BY: J. Williams/A. Stodghill	WELL DEVELOPMENT DATE: 5/2	23/92	SITE: North Fuel Farm	
S AND THE THE SAMPS TO THE ADSPACE (Ppm)	SOIL/ROCK DESCRIPT: AND COMMENTS Continued from PA	THO	SOIL CLASS MI-9/SMOTB	WELL DATA
1 1 1 2 2 2	ND: Tan, fine to medium grained.		SP 12,14,15,15	
1.5/2 325.0			15,18,20,28	
1.5/2 14.0 SA	ND: Tan, fine to medium grained.		SP 28,28,29,27	
1.5/2 110.0			38,42,48,42	
1.3/2 240.0 SA	ND: Tan, fine to medium grained.		SP 35,45,46,45	
1.8/2			20,25,25,30	
1.0/2 50.0 SA	ND: Tan, fine to medium grained,	saturated.	SP 27,27,27,29	
5— 2.0/2 35.0 SA	ND: Yellowish gray to dark yellow	grey.	SP 14,8,10,11	
5—				
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